Neosebastes pandus Waite, Rec. South Austral. Mus., vol. 2, no. 1, p. 164, fig. 268, April 23, 1921 (reference).

Genus Maxillicosta Whitley

Maxillicosta Whitley, Rec. Austral. Mus., vol. 19, no. 4, p. 246, Sep. 19, 1935. (Type Maxillicosta scabriceps Whitley, orthotypic.)

• D- begin close behind eye -
Crown well elevated
Front 3 D- apart united, not ff Paraflocculi

• D- begin over hind half of eye
Crown low
Front 3 D- apart united, not ff Aflocculus
Front 3 D- apart D. VII, 15-18 Aflocculoidea
not not ff)

• D- begin in middle of eye
3 front D- apart elevated on forehead but not
separated far. Lumbricoidichthys

• D- begin over front half of eye
Crown low
Front 3 D- apart united not ff Aflocculus
Front 4 D- apart that, four separate for Auriculata
Front 3 D- ff- long, pungent, different D., but not
separate dry mouth for other Tuberculata

Ethmoseus

• D- begin before eye
3 apart in front D- apart.

allied to Neoscopelus but
differs in the naked maxillary,
which traversed by 4 or 5 very
prominent costae, instead of
being ridged and without ridges.
Vertex of head much more
numerous, pectoral not evenly
rounded and less than 4 of
scales in lateral line.

m.^{2} Bones of head with large mucif[illegible]
cavities; spines of head little
developed; scales deciduous,
cycloid.

v.^{1} Anal spines 3. Setarches.

v.^{2} Anal spines 2. Macrorcorpius.

~~l.^{2} Spinous dorsal begins over~~
~~preopercle.~~ Centropogon.

l.^{2}

x

Inaxillicosta scabriceps Whitley

Inaxillicosta scabriceps Whitley,
Rec. Austral. Mus., vol. 19, no. 4,
p. 246, pl. 18, figs. 4-5 (photographs),
Sep. 19, 1935 (type locality,
Kingscote, Kangaroo Island,
South Australia; 50 miles
south of Cape Wiles; off Flinders
Island; 37 to 75 fathoms).

Genus Sebastiscus Jordan and Starks

Sebastiscus Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 124, 1904. (Type Sebastes marmoratus Cuvier, designated by Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, art. 1, p. 239, 1913.)

Related to Helicolenus, from which it differs chiefly in the presence of a well developed air bladder. General appearance like Sebastodes, but with 12 dorsal spines and the vertebrae 24, of which 14 are caudal, thus belonging in the Scorpaeninae.

A 927 to A 929, A 935. Dodepa Island, Dutch East Indies. November 16, 1909: Length 210 to 243 mm):

Analysis of Species

a.' No spines at lower edge of orbit; olivaceous, mottled with darker. marmoratus.

a.² One or more small spines along lower edge of orbit.

b.' One small spine close below lower eye edge; rose red, marbled with golden and violet. albofasciatus.

b.² Three small spines at lower eye edge; uniformly pale. triacanthus.

Sebastiscus marmoratus (Cuvier)

Sebastes marmoratus Cuvier, Hist. Nat. Poiss., vol. 4, p. 345, 1829 (type locality, no locality; Langsdorf collection [= Japan]). — Schlegel, Fauna Japonica, Poiss., pts. 2–4, p. 46, pl. 21, figs. 1–2, 1843 (Japan): — Richardson, Ichth. China and Japan, p. 215, 1846 (Japan). — Bleeker, Verh. Batavia. Genoot. (Hal. Ichth. Japan), vol. 25, p. (12) 29, 1853 (Nagasaki); (Hal. Ichth. Japan), vol. 26, p. 5, 1857 (Nagasaki); Act. Soc. Sci. Ind. Neerl., vol. 3, No. 3, p. 2, 1857–58 (Kiosio), p. 5 (Japan); vol. 5, No. 9, p. 2, 1858–59 (Nagasaki).

7139, 7172, 7173. West coast of Palawan Island. November 18, 1908. Length 260 to 300 mm. Black shoulder bar present. Dorsal edge very narrowly bluish, anal more so. Caudal tips white and white bar at base obscure. Pectoral tips yellow.

6928. West coast of Tabtabon Island. November 8, 1908. Length 290 mm.

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 104, 1860 (Japan; China). — Kner, Reise Novara, Fische, p. 114, 1866 (Hong Kong, Manila, Java). — Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, math. naturw. Kl., vol. 49, pt. 1, p. 200, 1885 (Tokyo, Singapore, Java, Manila, Hong Kong). — Lystrom, Bih. Svensk. Vet. Akad. Handl. Stockholm, vol. 13, af. 4, no. 4, p. 20, 1887 (Nagasaki). — Ishikawa and Matsmura, Cat. Fish. Mus. Tokyo, p. 51, 1897.

Sebastichthys marmoratus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 16, 1876 (Java, Luzon).

71602 U.S.N.M. Jafa, Okinawa. Albatross Collection 1906. Length 87 to 126 mm. 7 examples. As Hepatus dussumieri.

72195 U.S.N.M. Calayan. R.C. McGregor. Length 117 mm.

84185 U.S.N.M. Philippine Islands. Dr. F. Baker. Length 77 mm.

55940 U.S.N.M. Bulan. Bureau of Fisheries. Length 165 mm.

Helicolenus marmoratus Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 98, 1901 (reference).

Sebastiscus marmoratus Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 124, 1904 (Hakodate, Same, Tokyo, Misaki, Sagami Bay, Enoshima, Sumiga Bay, Kobe, Hiroshima, Wakanoura, Nagasaki). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, art. 1, p. 239, 1913 (reference). — Izuka Jordan and Matsumura, Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 129, 1920 (Ajiro, Izu). — Jordan and Hubbs, Mem. Carnegie Inst., vol. 10, no. 2, p. 271, June 27, 1925 (Shizuoka; Tokyo; Kobe; Mikawa Bay; Misaki).

13303. Dodepa and Tarragoga Islands, Gulf of Tomini, Celebes. November 16, 1909. Length 180 mm.

A1477. Kait Point, Libang Bay, Celebes. December 29, 1909. Length 227 mm.

A1166 and 22822. Gone Road, Gillolo Island. December 1, 1909. Length 193 to 230 mm.

55558 U.S.N.M. Punko Bay, Hawaii. Albatross Collection. Length 122 to 144 mm. 2 examples. Cf. Hepatus umbra, but evidently the present species.

55626 U.S.N.M. Zamboanga. Dr. E. A. Mearns. Length 46 mm.

57917 U.S.N.M. Zamboanga. Dr. E. A. Mearns. Length 37 to 60 mm. 3 examples.

57951 U.S.N.M. Zamboanga. Dr. E. A. Mearns. Length 43 to 58 mm. 6 examples.

? *Sebastes sinensis* Inc Clelland, Calcutta Journ. Nat. Hist., vol. 4, p. 397, pl. 21, fig. 3, 1843 (type locality, Chusan, China).

Sebastiscus albofasciatus (not Lacépède) Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, p. 483, 1906 (Kochi). (error).

6964. West coast of Yabtan Island.
November 8, 1908. Length 220 mm. Black,
fading on sides and anteriorly to orange,
above pectoral base scarlet. Black
persistent as blotch behind upper
angle of gill opening. Slight orange
shades through and between eyes.
White band from tip of maxillary across
chin. White blotch on iris below.
Preopercle edge showing as blackish
bar on faded fish and another bar
somewhat in front, from behind eye
across cheek. Vertical fins black,
except orange tips and margin of
caudal. Pectoral black basally, orange
on terminal half or $\frac{3}{5}$. Ventral black.

Depth 3 to 3 1/8; head 2 2/5 to 2 3/5, width 2 1/8 to 2 1/5. Snout 3 1/2 to 3 7/8 in head from snout tip; eye 3 7/8 to 4 1/2, 1 1/8 to 1 1/5 in snout, greater than interorbital; maxillary reaches 7/8 in eye in young, to hind eye edge with age; expansion 1 3/5 to 1 7/8 in eye, length 2 in head from snout tip; teeth finely villiform, in broad bands in jaws, patch on vomer and narrow strip on each palatine; interorbital 6 to 8 3/5, deeply concave. Gill rakers 7+12, of which 5 of upper and 6 lower rudimentary tubercles; lanceolate, 1 1/16 in gill filaments, which 2 1/3 in eye. Pair of nasal spines, 1 antero-supraorbital and 2 postero-supraorbitals, followed by

pair of coronal, parietal, occipital and nuchal spines; suprascapular spine, with 2 spines forward, one above the other with upper larger; preorbital spine small, over maxillary and below front eye edge; 4 preopercular spines; 2 opercular spines, upper little posterior.

Scales 60 to 62 + 5 or 6 along and close above lateral line; 47 or 48 + 3 tubular scales in lateral line; 9 scales above, 16 below, 26 predorsal forward to middle of interorbital space or opposite eye center; 10 from lower eye edge to hind angle of preorbital stay. Muzzle, except preorbital, inclusive of maxillary, naked. Scales with 7 basal radiating striae; 18 to 20 apical denticles; circuli fine.

D. XII, 12, I, fourth spine 2 1/2 to 2 7/8 in total head length, fourth ray 2 3/5 to 3; A. III, 5, I, second spine 2 to 2 1/2, first ray 1 3/4 to 2 1/4; caudal 1 1/2 to 1 7/8, convex behind; least depth of caudal peduncle 4 to 4 1/5; pectoral 1 1/8 to 1 2/5, rays I, 8, IX; ventral I, 5, fin 1 1/2 to 1 7/8 in total head length.

Brown, scarcely paler below. Along back 5 dark or blackish blotches below dorsal fins and one as saddle on caudal peduncle above. Sides obscurely marbled darker and paler. Iris gray to brown. Fins brownish, variously mottled darker, usually as 2 or 3 dark, inclined lines on branched rays of pectoral.

China, Korea, Japan. The coloration of this species quite variable in alcohol, often specimens in the same jar quite unlike one another. The dark blotches may be solid and contrasted, or so broken as to form reticulated patterns. Often the fins are finely speckled or dotted, and the white blotches along the back may not be prominent.

13735. Cammahala Bay, Ragay Gulf, small stream. March 11, 1909. Length 155 mm.

18852, 18853. Hong Kong, China. October 19, 1908. Length 130 to 140 mm. Two examples.

9744. Kowloon, China. October 5, 1908. Length 180 mm.

U. S. N. M., 20.9125. Japan. Length 94 to 260 mm. Two examples.

U. S. N. M., No. 45291. Fusan, Korea. P. L. Jouy. Length 83 mm.

U. S. N. M., No. 45293. Fusan. P. L. Jouy. Length 98 mm.

U. S. N. M., No. 45310. Japan. P. L. Jouy. Length 105 mm.

U. S. N. M., No. 51231. Tokyo. D. S. Jordan and J. O. Snyder. Length 120 to 240 mm. Four examples.

U. S. N. M., No. 51243. Misaki. D. S. Jordan and J. O. Snyder. Length 174 to 212 mm. Two examples.

U. S. N. M., No. 51317. Suruga Bay. Albatross Collection. Length 158 mm. Sides marked all over with scattered whitish spots or blotches.

U. S. N. M., No. 51805. Mogi, near Nagasaki. September 1904. Length 103 to 158 mm. Two examples. Quite contrasted, with 2 rows of dark blotches on side. Vertical

fins pale, with dark reticulation. Iris gray. Pectoral with 4 or 5 rows of dark points.

U. S. N. M., No. 51250. Suruga Bay, Japan.

Albatross Collection. Length 158 mm.

U. S. N. M., No. 57491. Japan.

P. L. Jouy. Length 99 mm.

U. S. N. M., No. 57499. Japan.

P. L. Jouy. Length 177 mm.

U. S. N. M., No. 57503. Japan.

P. L. Jouy. Length 197 mm.

U. S. N. M., No. 57507. Japan.

P. L. Jouy. Length 220 mm.

U. S. N. M., No. 57526. Japan.

P. L. Jouy. Length 122 mm.

U. S. N. M., No. 57543. Japan.

P. L. Jouy. Length 167 mm.

U. S. N. M., No. 57567. Japan.

P. L. Jouy. Length 144 mm.

U. S. N. M., No. 57656. Japan.

P. L. Jouy. Length 103 to 168 mm.

Five examples.

U. S. N. M., No. 59726. Kochi, Japan. H. M. Smith. Length 164 mm. I place this with the present species as it has no lower marginal orbital spine. Pectoral uniformly pale. Cf. Sebastichthys albofasciatus.

U. S. N. M., No. 71713. Hamao, Japan. Albatross Collection. Length 196 mm.

U. S. N. M., No. 71714. Hamao. Albatross Collection. Length 150 to 250 mm. Three examples.

U. S. N. M., No. 71921. Tokyo market. Albatross Collection 1906. Length 140 to 213 mm. Five examples.

U. S. N. M., No. 71930. Kagoshima. Albatross Collection. Length 167 mm.

U. S. N. M., No. 71957. Misaki. Albatross Collection. Length 208 mm.

U. S. N. M., No. 85976. China. A. Sowerby. One example. Length 115 mm. D. XII, 12, I; A. III, 5.

818

E. V. R. M., No. 87084. Shanghai.

A. Lowerby. Length 174 & 187 mm.

Two examples. A. XII, 12, I; A. III, 5, I.

Sebastiscus albofasciatus (Lacépède)

Holocentrus albofasciatus Lacépède, Hist. Nat. Poiss., vol. 4, ff. 333, 372, 1802 (type locality, China).

Sebastes albofasciatus Cuvier, Hist. Nat. Poiss., vol. 4, p. 344, 1829 (China; Japan).

— Bleeker, Verh. Batavia. Genoot. (Nat. Schth. Japan), vol. 25, p. 12, 1853 (reference).

A996, A997, A1033, A1034. Buka Island, Gulf of Totomi, Celebes. November 20, 1909. Length 210 to 228 mm. Nearly black, shading to brown under scales, probably dark seal brown with slaty streaks in life which usually 2 to each scale row. On side of head and breast brown in form of hexagonal spots in pale ground color, spots size of number 6 shot. No black shoulder blotch or black spots in axils of verticals. Fins nearly black, dorsal with oblique bars extending upward and backward, best seen in reflected light. Oblique bars very indistinct on anal. Caudal without markings. Pectoral membranes hyaline.

Sebastiscus albofasciatus

Jordan and Starks, Proc.
U. S. Nat. Mus., vol. 27, p. 126,
1904 (description of type; Tokyo;
Misaki; Awa; Idzuhara; Suruga Bay; Totomi
Bay). — Jordan, Tanaka, Snyder,
Journ. College Sci., Tokyo, vol.
33, art. 1, p. 239, 1913 (reference).

Jordan and Hubbs, Mem. Carnegie
Mus., vol. 10, no. 2, p. 271, June 27, 1925
(Shizuoka; Osaka; Misaki).
— Izuka and Matsura, Cat.
Zool. Spec. Tokyo Mus., Vertebr.,
p. 129, 1920 (Tabamatsu).
— Jordan and Thompson, Mem. Carnegie
Mus., vol. 6, no. 4, p. 273, Sep. 1914
(Osaka; Tsushima Strait

Sebastiscus albofasciatus

? Sebastodes tsuruara Tanaka,

Sebastiscus tsuruara Tanaka, Zool. Mag. Tokyo, vol. 29, p. 10, 1918 (type locality, Imisaki).

(part)

Sebastes marmoratus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 104, 1860.

1021

A977. Buang Duang Island. November 17, 1909. Length 345 mm.
A927. Dollega Island, Celebes.

November 16, 1909. Length 344 mm.

Generally slaty, with dark brown stripes on side posteriorly, much wider than interspaces and somewhat breaking into spots on back immediately below dorsal fins. Side of head, front of breast and body anteriorly above pectoral base with brown spots hexagonal; on hind breast and belly spots obsolete. Upon fading and in alcohol spots disappear. Dorsal like body, crossed by oblique bars anteriorly and posteriorly, turning and horizontal or parallel to outer fin edge on soft fin terminally. Anal similar; and in both fin markings little distinct except by transmitted

Depth 2 7/8 to 3; head 2 1/3 to 2 2/5, width 1 3/5 to 2. Snout 3 1/6 to 3 2/5 in head from snout tip; eye 3 1/2 to 3 4/5, greater than to subequal with snout; greater than interorbital; maxillary reaches 2/5 to 1/2 in eye, expansion 2 to 2 1/5 in eye, length 2 1/8 to 2 1/3 in head from snout tip; teeth finely villiform, in bands in jaws, on vomer and palatines; interorbital 6 3/5 to 7 4/5, deeply concave. Gill rakers 7+15 or 16, lanceolate, 3 1/3 in eye; gill filaments 4/5 of gill rakers. Pair of nuchal spines; 1 antero-supraorbital and 3 postero-supraorbital spines, pair of coronals between last 2 postero-supraoculars, followed by pair of long-keeled occipitals and shorter nuchals;

suprascapular spine with 2
spines, one above and other
forward, of which upper larger;
single broad spine on lower
predorbital edge below front of
eye; suborbital stay with small
spine at lower eye edge little
posterior; 5 preopercular spines;
2 broad opercular spines,
upper little larger and slightly
more posterior.

Scales 74 or 75 + 5 or 6 close
along above lateral line; 43 or
44 + 2 or 3 tubular scales in
lateral line; 10 scales above,
20 or 21 below; 12 predorsal
forward opposite hind upper
edge of preopercle; 9 along upper
edge of suborbital stay from
eye to angle at preopercle ridge,
15 below in vertical series.
Muzzle, including interorbital and

maxillary, naked. Caudal and paired fins scaly basally. Scales with 10 slightly radiating basal striae; 23 to 25 rather slender apical denticles, with 2 transverse series of basal elements; circuli fine basally, coarser apically.

D. XII, I 12, I, fourth spine 2 1/6 to 2 2/3 in total head length, second ray 2 2/5 to 2 9/10; A. III, 5, I, second spine 2 to 2 3/5, first ray 2 1/6 to 2 1/2; caudal 1 7/8 to 2, slightly convex behind; least depth of caudal peduncle 5 2/5 to 5 3/5; pectoral 1 1/3 to 1 2/3, rays I, 8, VIII; ventral rays I, 5, fin 1 4/5 to 2 in total head length.

Rather light brown, with 4 whitish blotches along edge of back, first at middle of base of spinous fin and last on

caudal peduncle above. Iris gray. Fins all pale, small, with few obscure, scattered, small, brown spots on pectoral.

Japan. Very close to *Sebastiscus marmoratus* but distinguished chiefly by the small spine on the suborbital stay at lower edge of orbit.

U. S. N. M., No. 51241. Yagami Bay, Japan. *Albatross* Collection (237). Length 168 mm.

U. S. N. M., No. 51267. Sumiga Bay. *Albatross* Collection. Length 138 mm.

U. S. N. M., No. 51270. Totomi Bay. *Albatross* Collection. Length 188 mm.

U. S. N. M., No. 51275. Sumiga Bay. D. S. Jordan and J. O. Snyder. Length 88 to 104 mm. Three examples.

U. S. N. M., No. 51308. Yuruga Bay. D. S. Jordan and J. O. Snyder. Length 163 mm.

U. S. N. M., No. 51362. Yuruga Bay. Albatross Collection. Length 88 mm.

U. S. N. M., No. 57600. Japan. P. L. Jouy. Length 185 mm.

Genus Helicolenus Goode and Bean

Helicolenus Goode and Bean, Oceanic Ichth., p. 248, 1895. (Type Scorpaena dactylopteria de la Roche, orthotypic.)

Body oblong, somewhat compressed. Head large. Mouth large. Teeth villiform, in bands in jaws, on vomer and palatines. Bones of head scarcely cavernous. Gill rakers lanceolate. Several series of spinous ridges on head, but without occipital pit. Suborbital keel smooth or with single anterior spine under eye. Preorbital with small spines, hidden under skin. No air bladder. Vertebrae 24, of which 14 caudal. Ctenoid scales on top

66033. U.S.N.M. Suva, Fiji. Albatross Collection. Length 55 mm. Sula Vigans rostratus.

70999. U.S.N.M. Shimizu, Japan. Albatross Collection. 6 examples. Length 90 to 148 mm.

71130. U.S.N.M. Tokyo market. Albatross Collection. Length 235 mm.

75-907. U.S.N.M. Borneo. H.C. Raven. Length 233 mm.

of and on sides of head. dorsal continuous, not deeply notched, stout spines 10, rays 10 to 12. Anal with 3 spines, rays 6. Pectoral broad, fan shaped; rays in 3 groups, first of 2 simple rays, second of 8 or 9 branched rays, third of 8 simple rays, sometimes prolonged with tips tendril-like and free from membrane half their length or less.

Atlantic and Pacific, in rather deep water.

Helcolenus

~~Sebastodes~~ maccullochi (Phillipps)

Sebastodes maccullochi Phillipps, Trans. Proc. New Zealand Inst., vol. 58, p. 127, fig. 2, 1927 (type locality, Cook Strait).

Depth 3; head 2 2/5. Eye 4 1/4 in head, greater than snout; maxillary reaches opposite hind edge of orbit, expanded behind, length 2 1/5 in head from snout tip; interorbital 6 2/5.

Posterior to eye well in from opercular edge 3 small spines, while a further series on top of head; latter of 7 pairs of

A501. Balukbaluka Island. September 12, 1909. Length 315 mm. Uniform slaty above, becoming white with slight olive wash below. Tips of soft dorsal rays pale, body of fin olive with irregular pale bars. Anal similar, markings less distinct and edge like that of dorsal or darks with submarginal pale. Caudal uniform purple slate.

14982. Calangaman Island. March 16, 1909. Length 250 mm.

18829. Cebu market. March 27, 1909. Length 90 mm.

11620. Endeavor Strait. December 24, 1908. Length 215 mm.

small spines running above eyes and turning outwards towards commencement of lateral line; of these 1 pair before front eye edge, 3 pairs above, 1 pair above posterior margin and 2 behind; preopercular spines 4, small, backwardly directed.

Scales 60 in lateral line; pores 36 in lateral line.

D. XI, I, 13, begins above most posterior spine on head; A. III, 5; caudal slightly emarginate; pectoral 11, VII, with wide scaly base, equals ventral; ventral rays I, 5.

(Phillips.)

New Zealand. Color and size not stated, though figure appears uniform. ~~Said to resemble Sebastodes chlegeli~~ Dr. George V.

Myers informs me he has seen the type of Sebastodes maccullochi Philipps and that it belongs in ~~H~~Helicolenus.

Helicolenus dactylopterus (de la Roche)

Scorpaena dactylopterus de la Roche, Ann. Mus. Hist. Nat., Paris, vol. 13, p. 337, pl. 22, fig. 9, 1809 (type locality, Ivica, Barcelona).

Sebastes dactylopterus Steindachner and Döderlein, Denk. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 49, pt. 1, p. 201, 1885 (Tokyo, Japan).

Helicolenus dactylopterus Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 128, 1904 (Misaki, Tokyo, Sagami Bay, Suruga Bay, 65 to 749 fathoms).

— Tanaka, Journ. Fac. Sci. Imp. Tokyo, Zool., vol. 3, pt. 1, p. 36, Nov. 4, 1931 (reference).

— Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus., Vert., p. 128, 1920 (Ajiro, Izu).

1370

20242. San Roque market. June 13, 1908.
Length 138 mm.

13807 and
13808. Santa Cruz Island, Marinduque.
April 24, 1908. Length 84 to 137 mm.

8811, 9558, 9559, 9560 [1154], 21668 to 21670.
Santiago River, Pagapas Bay. February 20,
1909. Length 97 to 175 mm. Veiled slaty
gray, becoming whitish below. Numerous
elongate elliptical spots on sides, become
round on top of head and along dorsal
base, also much smaller above, all
dusky white in color. Fresh examples
show yellowish olive shades, spots
appearing through with slight tendency
to dusky margins so as somewhat
ocellate. Vertical fins with dusky clouds
and blotches. Pectoral hyaline, with
slight yellowish shade. Ventral clouded
dusky.

Sebastes hilgendorfii (Döderlein)
Steindachner and Döderlein, Denks.
Akad. Wiss. Wien, math.-naturw. Kl.,
vol. 49, pt. 1, p. 202, 1885 (type locality,
Tokyo) (name in text).

Helicolenus hilgendorfii Jordan
and Snyder, Annot. Zool. Japon.,
vol. 3, p. 98, 1901 (reference). ?1.

4 examples. Port Matalvi, Luzon.

November 23, 1908. Length 54 to 98 mm.
19778. Ragay Bay. Ragay Gulf. March 10, 1909. Length 48 mm.
1 example. Reef opposite Cebu, Cebu.

April 5, 1908. Length 23 mm.

1 example. Reef opposite Cebu. April 7, 1908. Length 33 mm.

14966. Refugio Island, Pasacao, Luzon. March 9, 1909. Length 73 mm.

19453. River at Pasacao, Luzon. March 9, 1909. Length 77 mm.

10583. San Fernando Port. May 10, 1909. Length 154 mm.

5497. San Juanico Strait, Leyte. April 13, 1908. Length 168 mm.

22383. San Miguel Bay. June 14, 1909. Length 80 mm.

20328. San Pascual Island, tide pool. March 8, 1909. Length 32 to 92 mm. 3 examples.

7124, 11314, 11315. San Roque, Leyte Island. July 29, 1909. Length 140 to 238 mm.

Depth 2 7/8 to 3; head 2 3/5 to 2 3/4, width 1 7/8 to 2. Snout 4 1/8 to 4 1/3 in head from snout tip; eye 3 to 3 2/3, greater than snout or interorbital; maxillary reaches 2/3 to 3/4 in eye, expansion 2 to 2 1/4 in eye, length 1 7/8 to 2 in head from snout tip; teeth villiform, in broad bands in jaws, on vomer and palatines; interorbital 6 1/2 to 7 1/2, deeply concave. Gill rakers 8+17, 5 of which 5 or 6 low tubercular rudiments; lanceolate, 1 1/5 times gill filaments or 3 in eye. Pair of nuchal spines; slender antero-supraorbital spine, 3 postero-supraorbitals, followed by pair of occipitals and nuchals; 3 small suprascapular spines; 5 spines on preopercular edge; small spine at lower eye edge on suborbital stay; 2 wide-set

opercular spines, upper little posterior.

Scales 53 to 55 + 4 or 5 along and close above lateral line; 32 or 33 + 3 tubular scales in lateral line; 7 or 8 above, 13 or 14 below, 26 predorsal forward opposite eye center; 9 scales back from eye along upper edge of suborbital stay. Muzzle, including maxillary, naked, rest of head scaly. Soft vertical and paired fins scaly basally. Scales with 10 or 11 basal radiating striae; 40 to 42 slender apical denticles, with 3 transverse series of basal elements; circuli fine.

D. XII, 12, I, third spine 2 1/2 to 2 3/5 in $\overline{=}$ total head length, second ray 1 7/8 to 2 1/4; A. III, 5, I, second spine 2 1/3 to 2 2/3, $\overline{=}$ first branched ray 2 1/8 to 2 1/3; caudal 1 1/2 to 1 3/5,

slightly emarginate, truncate as expanded; least depth of caudal peduncle 3 4/5 to 4; pectoral 1 1/6 to 1 1/4, rays II, 9, VIII; ventral I, 5, fin 1 3/5 to 1 4/5 in total head.

Largely uniform pale brown. Iris gray. Fins uniformly pale.

Japan. Also in the eastern Atlantic and Mediterranean.

U. S. N. M., No. 51310. Japan. Albatross Collection. Length 128 to 140 mm. Two examples.

U. S. N. M., No. 51311. Japan. Albatross Collection. Length 143 mm.

U. S. N. M., No. 51313. Suruga Bay, Japan. D. S. Jordan and J. O. Snyder. Length 94 mm.

U. S. N. M., No. 51348. Suruga Bay. D. S. Jordan and J. O. Snyder. Length 98 to 103 mm. Three examples.

U. S. N. M., No. 51374. Japan. D. S. Jordan and J. O. Snyder. Length 219 mm.

U. S. N. M., No. 59712. Kagoshima. Dr. H. M. Smith. Length 128 to 143 mm. Two examples. Five dark saddles on back.

U. S. N. M., No. 71591. Shimizu. Albatross Collection. Length 193 mm.

As Helicolenus hilgendorfii.

U. S. N. M., No. 51312. Suruga Bay. Albatross Collection. Length 90 to 91 mm. Two examples.

U. S. N. M., No. 51347. Japan. D. S. Jordan and J. O. Snyder. Length 90 mm.

Helicolenus maculatus (Cuvier)

Sebastes maculatus Cuvier, Hist. Nat. Poiss., vol. 4, p. 343, 1829 (type locality, Cape of Good Hope). — Pappe, Synop. Edible Fish. Cape, p. 14, 1853 (Cape of Good Hope). — Castelnau, Mem. Poiss. Afrique australe, p. 7, 1861 (Cape of Good Hope). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 101, 1860 (copied). — Gilchrist, Marine Invert. South Africa, vol. 1, p. 119, 1902 (reference); Fisher. Marine Biol. Survo. South Africa, Rep. No. 2, Spec. Rep. 3, p. 75, 1921 (1922) (off Cape of Good Hope; Natal). — Bleeker, Nat. Tijds. Ned. Indie, vol. 21, p. 52, 1860 (reference).

finer on top of head and coarser on sides below, latter more white. Greenish line under eye. Iris silvery with dusky shades. Dorsal dusky olive-green, with irregular white mottling - on membranes and soft dorsal with yellowish tinge, rays with spots. Anal like dorsal. Caudal dusky, with slight yellowish shade. Pectoral hyaline, with yellowish dusky shade. Ventral with spines and first ray white, - other rays and membranes dusky.

4846. Jolo market. February 11, 1908. Length 238 mm.

4827. Little Santa Cruz Island, Zamboanga. May 26, 1908. Length 410 mm.

~~11240 Jolo 1908. Maccan Island.~~

6775. Makanipa Island. April 29, 1909. Length 428 mm:

— Von Bonde, Marine Biol. Rep. South Africa, Rep. no. 3, Spec. Rep. 1, p. 33, 1922 (1924) (off South Africa).

Helicolenus maculatus Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 907, Oct. 1927 (False Bay; Agulhas Banks; Natal; in 50 to 300 fathoms). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 482, 1934 (Natal).

5314, 18361 and 18362. Cebu market. April 4, 1908. Length 126 to 244 mm.

5841, 21344, 22876, 22878. Davao, Mindanao. May 16, 1908. Length 31 to 215 mm: 10 examples.

20586 and 20587. East side Tagbalcoran Strait, Bohol Island. April 9, 1908. Length 56 to 62 mm.

17004 and 17015. Galvaney Island, Ragay Island, Luzon. March 9, 1909. Length 108 to 122 mm.

13814 and 13815. Guijulugan, Negros Island. April 2, 1908. 19 examples. Length 24 to 153 mm.

4798. Jolo market, Jolo. February 8, 1908. Length 244 mm. Bright olive yellow over dusky, brightest on back and top of head, fading white below. Dusky median streak on breast. Sides of back with small, irregular, citron-yellow spots about size of number 12 shot above, becom-

Depth 3 1/8; head 2 1/2, width 2 1/6. Snout 5 1/3 in head from snout tip; eye 3 1/5, orbit 2 4/5; maxillary reaches 3/4 in eye, expansion 2 1/2 in orbit, length 2 in head from snout tip; teeth villiform, in bands in jaws, 10 rows transversely above and 4 below; interorbital 8 1/2, steeply concave. Gill rakers 9 + 21, lanceolate, 2 4/5 in orbit; gill filaments 2/3 of gill rakers. Pair of nasal spines; one antero-supraorbital spine and 1 postero-supraorbital, followed by pair of occipitals and pair of nuchals; 5 large divergent spines on preopercle edge; 3 spines on opercle, lowest most posterior.

Scales 52 close above and along lateral line to caudal base; 26 + 2 tubular scales in lateral

line; 6 scales (pockets) above, 16 below, 20 predorsal forward midway in interorbital. Scales with 8 or 9 basal radiating striae; 35 to 43 apical denticles, with 3 or 4 transverse series of basal elements; circuli very fine.

D. XII, 12, I, third spine 2 1/5 in total head length, first ray 1 9/10; A. III, 5, I, third spine 2 7/8, first ray 2; caudal 1 3/5, ending in median convex point behind; least depth of caudal peduncle 4 4/5; pectoral 1 1/10; ventral 1 7/8.

Back vinaceous, becomes lavender to pearl blue on under surfaces. Iris glaucous blue. Fins pale uniform brown.

South Africa.

846

A. h. S. P., one example. Natal. 1931. H. W. Bell Marley. Length 218 mm.

Helicolenus rufescens Gilbert

Helicolenus rufescens Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 631, fig. 246, 1903 (1905) (type locality, Kauai, in 41 to 165 fathoms; off Maui, in 78 to 85 fathoms). — Fowler, Mem. Bishop Mus., vol. 10, p. 291, 1928 (compiled).

7 examples. North end of Endeavor Strait, north west coast of Palawan. December 22, 1908. 7 examples. Length 45 to 93 mm.

15752. Opol, Mindanao. August 4, 1909. 5 examples. Length 103 to 189 mm.

4 examples. Pandanon Island. March 24, 1909. Length 26 to 48 mm.

12 examples. Pandanon Island. March 23, 1909. Length 27 to 93 mm.

1930. Parang, Mindanao. May 23, 1908. Length 208 mm.

1050 examples. Port Bark anchorage, by electric light. March 31, 1908. Length 23 to 28 mm. All faded pale.

7387. Port Calto~~m~~, Busuanga Island. December 15, 1908. Length 225 mm.

11 examples. Port Galera. June 9, 1908. Length 27 to 61 mm.

10514, 18692, 18693. Port Jamelo, Luzon. July 13, 1908. Length 110 to 203 mm.

Depth 2 7/8; head 2 1/8, width 1 3/4. Snout 3 3/4 in head; eye 3 1/4, slightly greater than snout and much greater than interorbital; maxillary reaches 2/3 in eye, expansion 1 3/4 in eye, length 2 1/5 in head; teeth finely villiform in jaws, in bands, and on vomer and palatines; interorbital 4 1/2, bony interorbital half entire interorbital width. Gill rakers 5 + 13, 1 3/4 in gill filaments, which 4 in eye. Pair of small spines above nostrils; small antero- supraorbital spine and 3 postero- supraorbitals, followed by pair of occipitals and pair of nuchals; 2 suprascapular spines each side, with 2 postoculars forward of which posterior much larger; 2 strong lower preorbital spines, posterior much

larger; suborbital stay with 3 small spines, at preopercle ends in large spine directed back, with small one on its outer basal face; 3 smaller spines on lower preopercle edge; 2 broad, flat opercular spines, upper much larger.

Scales 46 + 5 close along and above course of lateral line; 26 + 1 tubular scales in lateral line; 8 scales above to soft dorsal origin, 14 below, 11 predorsal forward to occiput; 6 rows on cheek to angle of preopercle ridge and 8 rows below suborbital stay. Few simple, skinny flaps along lateral line. Short nasal flap. Supra-ocular, upper preocular, occipital, lower preorbital and lower 2 preopercular spines each with

skinny flap. Muzzle, including maxillary and interorbital, naked, rest of head scaly. Scales with 9 to 11 basal radiating striae, close set; 45 to 52 small, short, apical denticles and 3 or 4 transverse series of basal elements; circuli very fine.

D. XII, 9, I, third spine 2 1/3 in head; first branched ray 2 7/8; A. III, 5, I, second spine 2 2/5, second branched ray 2 1/2; caudal 2, slightly rounded behind; least depth of caudal peduncle 4 1/3; pectoral 1 2/3, rays 18, fifth and sixth from above feebly bifid; ventral I, 5, fin 1 7/8 in head.

Pale or uniform brown. Iris grayish. Fins like body.

Hawaiian Islands.

U. S. N. M., No. 31628. Vicinity of Kauai. Length 108 mm. Type.

Helicolenus papillosus (Schneider)

Synanceja papillosus Schneider,
Syst. Ichth. Bloch, p. 196, 1801
(type locality, New Zealand).

Synanceia papillosus Schneider,
op. cit., p. XXXVII (name in synopsis).

Helicolenus papillosus McCulloch,
Mem. Australian Mus., No. 5, pt. 3,
p. 385, Nov. 28, 1929 (reference).

52111. U.S.N.M. No locality. ~~Jenoff~~ Expedition. Length 158 mm.

55948. U.S.N.M. Jolo, Philippines. Bureau of Fisheries [3518]. Length 222 mm.

55953. U.S.N.M. Baeom, Philippines. Bureau of Fisheries [3851]. Length 33 to 43 mm. 177 examples.

55974. U.S.N.M. Baeom. Bureau of Fisheries. [3924]. Length 125 mm.

56283. U.S.N.M. Sloilo, Philippines. G. A. Lung. 2 examples. Length 60 & 71 mm. As Diganus oramin.

57555. U.S.N.M. Japan. P. L. Jouy. Length 200 mm.

59695. U.S.N.M. Kagoshima. Dr. H. M. Smith. 2 examples - Length 138 & 140 mm.

59959. U.S.N.M. Clarence River. D. G. Stead. Length 245 mm. As Diganus nebulosus.

Scorpaena cottoides (Forster) Schneider, Syst. Ichth. Bloch, p. 196, 1801 (type locality, New Zealand) (name in synonymy).

Scorpaena percoides (Solander) Richardson, Ann. Mag. Nat. Hist., London, vol. 9, p. 384, May 1, 1842 (type locality, Off Cape Kidnappers, New Zealand, and at Motuaro in Queen Charlotte Sound).

5972. Jamboanga market. May 26, 1908. Length 260 mm.

19340. Sandakan Bay, Borneo. March 2, 1908. Length 59 mm.

A875. Limbe Strait, Celebes. November 10, 1909. Length 234 mm.

13593 and 18110. Tana Kela Island, Celebes. December 21, 1909. Length 185 to 204 mm.

A1186 and 19942. Game Road, Gillolo Island. December 1, 1909. Length 174 to 208 mm.

11149. Hakuho, Hoo Wan, Formosa. January 29, 1910. Length 183 mm.

20342. Kowlan, China. September 12, 1908. Length 113 mm.

11240 and 19822. Mactan Island, Celebes. March 25, 1909. Length 140 to 147 mm.

Sebastes percoides Richardson, ~~Ann. Mag. Nat. Hist., London, vol. 9, p. 384, July 1842 (type locality,~~

Voy. Erebus and Terror, Fish., p. 23, pl. 45, figs. 1–2, 1844 (New Zealand; Van Diemen's Land; Port Jackson). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 101, 1860 (Port Arthur; Port Jackson; Tasmania; Australia).

Sebastes maculatus (not Cuvier) Richardson, Trans. Zool. Soc. London, vol. 3, p. 93, 18 .

Scorpaena macrophthalma Günther, Cat. Fish. Brit. Mus., vol. 2, p. 102, 1860 (type locality, no locality (name on museum specimen).

12637. U.S.N.M. Zanzibar. British Museum. 2 examples. Length 59 & 101 mm.

22578. U.S.N.M. Kimuramisaki, Japan. Japanese Government. Length 345 mm.

30615. U.S.N.M. New Guinea. Australian Museum. Australian Museum. Length 119 mm.

30626. U.S.N.M. New Guinea. Australian Museum. Australian Museum. Length 137 mm.

41553. U.S.N.M. Samoa. Dr. C. H. White. Length 148 mm.

43945. U.S.N.M. Mauritius. Colmel Nicholas Pike. 7 examples. Length 125 to 180 mm.

49511. U.S.N.M. Yokohama. September 1899. U.S. Fish Comm. Length 118 mm.

52041. U.S.N.M. Southern Negros, Philippines. Dr. Bashford Dean. 1901. 4 examples. Length 80 to 160 mm.

Sebastes alporti Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 2, p. 40, May 10, 1873 (type locality, Hobson's Bay, Victoria; Tasmania).

Scorpaena barathri Hector, Trans. New Zealand Inst., vol. 5, p. 245, pl. 10, fig. 15a, 1874 (1875) (type locality, Off Cape Farewell, in 400 fathoms).

20623 to 20625, Siriniao Island near Alfonso XIII. December 30, 1908. Length 135 to 168 mm.

17546. Sorsogon market. March 12, 1909. Length 168 mm.

1 example. Subic Bay, Luzon. Dr. P. Bartsch. Length 20 mm.

4358. Sulada Island. September 17, 1909. Length 63 mm. (D. 5553.)

5 examples. Sulada Island. September 18, 1909. Length 28 to 35 mm.

13 examples. Surigao, Mindanao. May 5, 1908. Length 28 to 67 mm.

3 examples. Taal anchorage. February 20, 1909. Length 29 to 31 mm.

11942. Tacloban market, Leyte. April 12, 1908. Length 135 mm.

16273. Tomabal Island. September 13, 1909. Length 190 mm.

6 examples. Tutu Bay. September 19, 1909. Length 11 to 33 mm. (D. 5562.)

4 examples. Ulugan Bay in island north of Oyster Inlet. December 28, 1908. Length 61 to 152 mm.

17720. Varadero Bay, Mindoro. July 23, 1908. Length 52 to 228 mm. 5 examples.

Depth 3 to 3 1/6; head 2 2/5 to 2 1/2, width 1 2/3 to 2 1/8. Snout 3 7/8 to 4 1/4 in head from snout tip; eye 3 1/2 to 3 7/8, greater than snout or interorbital; maxillary reaches 3/5 to 3/4 in eye, expansion 1 4/5 to 2 1/4 in eye, length 2 in head from snout tip; broad bands of fine teeth in jaws, on vomer and palatines; interorbital 6 1/5 to 7 1/2, low, with deep, median, concave channel. Gill rakers 7 + 17, lanceolate, 3 above and 4 below rudimentary; 1 1/5 in gill filaments, which 2 4/5 in eye. Pair of small nasal spines; small antero-supraorbital spine and 3 postero-supraorbital spines; pair of occipitals, preceded by long keel and shorter nuchals; strong suprascapular spine with

pair of spines forward, one above the other and upper little larger; 2 small, short, wide-set, low preorbital spines, anterior obsolete; in young suborbital stay usually with small spine opposite lower hind eye edge; 5 preopercular spines; 2 opercular spines, opposite, upper little larger.

Scales 61 to 63 + 4 close along and above lateral line; 28 or 29 + 2 tubular scales in lateral line, 9 scales above, 17 below, 30 pre-dorsal forward opposite eye center; 11 scales along upper edge of suborbital stay to preopercle edge, 13 below on cheek in vertical series. Maxillary with very small, close-set scales. Soft vertical fins and paired

fins basally with small crowded scales. Scales with 12 to 20 basal radiating striae; 20 to 62 apical denticles, with 0 to 3 transverse series of apical denticles; circuli fine, coarser apically.

D. XII, 12, I, third spine 2 to 2 2/3 in head, second ray 2 1/3 to 2 2/5; A. III, 5, I, second spine 2 1/2 to 3, second ray 2 1/4 to 2 1/2; caudal 1 3/5 to 2, truncate; least depth of caudal peduncle 3 4/5 to 4; pectoral 1 2/5 to 1 1/2, rays I or II, 9 or 10, VIII; ventral rays I, 5, fin 1 2/3 to 2 in total head length.

Brown, little paler to whitish below. Two broad brown blotches on back below each dorsal fin, which in turn redivided, also each division extended on bases of dorsals.

Brown blotch on head behind interorbital and another on predorsal close before spinous dorsal fin. Dark brown transverse band at caudal base and on caudal peduncle. Edges of all blotches margined with still darker brown and all also with small scattered dark brown specks. Iris pale or very light brown. Fins all pale. Alcoholic specimens quite faded and sometimes without any dark blotches.

Victoria, New South Wales, Tasmania, New Zealand.

U. S. N. M., No. 39666. New Zealand. Otago Museum. Length 327 mm.

U. S. N. M., No. 39678. New Zealand. Otago Museum. Length 151 mm.

U. S. N. M., No. 47865. Shoalhaven, New South Wales. Australian Museum. Length 224 mm.

U. S. N. M., No. 59929. South Coast of New South Wales. C. G. Stead. Length 250 mm.

Helicolenus emblemarius Jordan and Starks

Helicolenus emblemarius Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 129, fig. 9, 1904 (type locality, Akinose, near Misaki, Sagami and off Misaki). — Izuka and Matsmura, Cat. Zool. Spec. Tokyo Mus., Vert., p. 129, 1920 (Tokyo market).

7419, 7421, 8825. Malocchin Harbor, Linapacan Island. December 19, 1908. Length 208 to 263 mm.

3 examples. Manila Bay. December 9, 1907. Length 18 to 25 mm.

20095. Manila Market. July 11, 1908. Length 148 mm.

7294, 7303, 19615, 19616. Tamalay, Mindoro. June 4, 1908. Length 46 to 163 mm. 6 examples.

6215. Mantagaim Bay, Palawan Island. April 2, 1909. Length 103 mm.

1 example. Masabat Bay, Guinalasa Island, eastern Luzon. June 11, 1909. Length 21 mm.

9333. Murcielagos Bay, Mindoro. August 20 1909. 2 examples. Length 226 to 228 mm.

15851. Nabatas Point, Samar Island. July 24, 1909. Length 190 mm.

Depth 2 2/3; head 2 1/2, width 1 9/10. Snout 4 in head from snout tip; eye 3 1/8, greatly exceeds snout or interorbital; maxillary reaches 1/3 in eye, expansion 2 1/2 in eye, length 2 in head from snout tip; teeth villiform, in bands in jaws of 8 transverse irregular series anteriorly and narrow strips on vomer and palatines; interorbital (bony width) 6, little concave. Gill rakers 8 + 16, lanceolate, 2 1/2 in eye; gill filaments 3/4 of gill rakers. Pair of small ~~nuchal~~ nasal spines; one antero - supra-orbital spine and 3 postero - supra-orbitals, with pair of coronal spines between last pair; pair of long - keeled occipitals, followed by pair of short nuchals; 2 suprascapular spines, with

inclined forward and upward
row - of 3 spines, besides
spine below forward; 2 small
spines on upper hind orbital
rim and large one on lower rim;
2 broad, bifid spines on front
lower edge of preorbital;
preopercle edge with 5 spines,
2 lowest directed little forward;
2 opercular spines, upper much
longer and posterior, length 2½
in eye.

Scales 72 + 5 close along above
lateral line; 29 + 2 tubular
scales in lateral line; 15 scales
above, 19 below, 15 predorsal
forward to occiput, opposite
upper hind edge of preopercle;
about 10 large scales from
lower hind eye edge back to
angle of preopercle ridge at
junction of suborbital stay, about

a dozen scales below suborbital stay, on cheek in vertical series. Maxillary with very small scales, about 12 in transverse series over expansion. Head largely covered with fine scales, only lips naked. Soft vertical and paired fins finely scaled basally. Scales with 11 to 13 basal radiating striae; 15 or 16 slender apical denticles in 2 series; circuli fine, coarse apically.

D. XIII, 13, I, fourth spine 2 2/5 in head, second ray 2 1/5; A. III, 6, I, second spine 2 7/8, first ray 3; caudal 2, little convex behind; least depth of caudal peduncle 5; pectoral 1/12, rays I, 9, VIII; ventral I, 5, fin 2 in total head length.

869

Light or pale brown generally. Iris gray. Dorsal with posterior membranes of spinous fin marked with dusky terminally.

Japan.

U. S. N. M., No. 50908. Japan. Length 261 mm. Paratype (wrongly called "cotype" by Jordan and Starks).

Genus Merinthe Snyder

Merinthe Snyder, Bull. U. S. Fish Comm., vol. 22, p. 535, 1903 (1904). (Type Sebastes macrocephalus Lawaage. monotypic)

Body elongately ovoid, well compressed. Head very long, half of fish without caudal, well compressed. Snout longer than eye. Eye large, on upper profile of head, in front half of head. Mouth large, little inclined, lower jaw slightly protruded. Maxillary extends below eye; expanded behind. Villiform teeth in jaws, on vomer and palatines. Interorbital narrow. Gill opening very large, membranes free, separate. Gill rakers few, lanceolate. Pseudobranchiae well developed. ~~Teeth~~ Armature of

1353

Siganus notostictus (Richardson).

Amphacanthus notostictus Richardson, Ann. Mag. Nat. Hist. London, vol. 11, 1853, p. 172. Port Essington.

Teuthis notosticta Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 320 (type). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 158 (Yokohama).

Depth little over 3 in total. Caudal subtruncate. Light brownish olive. Body with brown spots, which smaller than interspaces and confluent on back into short, narrow vermiculated streaks. (Günther).

head well developed, frontal sharp pointed. Scales small on head, muzzle naked. Lateral line distinct, complete, little high at first. Long supraorbital filament well developed. Dorsal continuous, with moderate spines, small soft fin little higher. Anal with 3 strong spines, small soft fin little higher. Caudal subtruncate. Pectoral moderate. Ventral rather small.

Bright fishes of tropical seas, with long muzzle, large head and long supraorbital tentacle.

Analysis of Species

a.' Eye 2 in snout.

b.' Eye 5 1/3 to 6 1/2 in head. macrocephala.

b.² Eye 4 in head. nematophthalma.

a.² Eye greater than snout.

bandanensis.

Iverinthe macrocephala (Vauvage)

Sebastes macrocephalus Vauvage,
Bull. Soc. Philom., Paris, ser. 7,
vol. 6, p. 169, 1882 (type locality,
Hawaiian Islands).

Iverinthe macrocephala Snyder, Bull.
U. S. Fish Comm., vol. 22, p. 535, 1902
(1904) (Honolulu). — Jordan and
Veale, Bull. Bur. Fisher., vol. 25,
p. 374, 1905 (reference). — Jordan and
Evermann, Bull. U. S. Fish Comm.,
vol. 23, pt. 1, p. 461, pl. 55, 1903 (1905)
(Hilo; Waikiki). — Jordan and
Snyder, Bull. Bur. Fisher., vol. 26,
p. 217, 1906 (1907) (Honolulu). —
Jordan and Jordan, Mem. Carnegie
Mus., vol. 10, no. 1, p. 55, dec. 1922
(Hawaii). — Fowler, Bull. Bishop Mus.,

Verslagen Akad. Wet. Amsterdam, deel 12, 1861, p. 31 (Singapore). — Kner, Reise Novara, Fische., 1865, p. 207 (Sydney). — Weber, Siboga Exped., bond 65, 1913, p. 328 (Sailus Betgil, Gisser, Saleyer, Rotti). Teuthis hexagonata Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 320 (Fiji). — Günther, Journ. Mus. Godeffroy, bond 2-3, heft 5-6, 1874, p. 89 (Fiji and Samoa). — Károli, Termesz. Füzletek, Budapest, vol. 5, 1881, p. 15-8 (Singapore). — Meyer, Linn. Soc. Essex. Trans. Nat. Madrid, vol. 14, 1885, p. 22 (Manado, Celebes; Rubi, New Guinea). — Elera, Cat. Faun. Filip., vol. 1, 1895, p. 529 (Cebu).

Siganus hexagonata Veale, Philippine Journ. Sci., vol. 5, no. 4, 1910, p. 284 (Sandakan, Borneo).

no. 22, p. 27, 1925 (Honolulu). —
Tanaka, Fig. descript. Fishes of Japan,
vol. , no. , p. 42, 1928.

— Fowler, Mem. Bishop Mus., vol. 10,
p. 291, pl. 34C, 1928 (Honolulu, Hilo);
vol. 11, no. 5, p. 349, 1931 (Honolulu).

Siganus punctatus (Schneider).

Amphacanthus punctatus Schneider, Syst. Ichth. Bloch, 1801, p. 210. Pacific Ocean [Tonga and New Caledonia] (ex Forster). — Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 107 (Pacific Ocean).

Siganus punctatus Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 360 (Apia and Pago Pago). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 511 (Okinawa).

Harpurus inermis (Forster) Lichtenstein, Nomenclat. Animal., 1844, p. 286. Hapuka Island, New Caledonia.

Amphacanthus hexagonatus Bleeker, Nat. Tijds. Ned. Indië, deel 6, 1854, p. 5-18, Cocos Keeling Islands; l.c., deel 7, 1854, p. (38) 41 (Cocos); l.c., deel 8, 1855, p. 445 (Cocos); l.c., deel 9, 1855, p. 114 (Sumbawa); l.c., deel 20, 1859-60, p. 331 (Amboina). — Bleeker,

Depth 2 2/3 to 2 7/8; head 1 7/8 to 2, width 2 1/4 to 2 2/3. Snout 2 7/8 to 3 in head from snout tip; eye 5 1/3 to 6 1/2, 2 in snout, greatly exceeds interorbital; maxillary reaches 1/2 in eye, expansion 1 1/3 to 2 1/10 in eye, length 2 1/5 in head from snout tip; lips rather wide, fleshy; teeth fine, villiform, in bands in jaws, on vomer and palatines; interorbital 10 to 11 3/4 low, with eye impinging on its profile. Gill rakers 6+9, of which 4 upper rudiments; lanceolate, equal gill filaments, or 2 4/5 in orbit. Pair of small nasal spines; one antero-supra-orbital spine, and 3 postero-supraorbitals, followed by occipital and nuchal pair; suprascapular spine present;

large postocular spine above hind edge of preopercle; 2 broad diverging preorbital spines; suborbital stay with 4 low, long keels ending in small spine behind, first of which on preorbital; preopercle with 3 spines, upper longest and projects behind end of suborbital stay; 2 wide set opercular spines, lower slightly posterior.

Scales 49 to 52 + 5 above and along lateral line; 23 or 24 + 2 tubular scales in lateral line; 8 or 9 scales above, 14 or 15 below, 11 to 17 predorsal forward to occiput or opposite hind vertical edge of preopercle; 10 scales behind eye along suborbital stay to angle of preopercle ridge, and 11 scales vertically on cheek below suborbital stay. Muzzle

naked, including maxillary and interorbital. Caudal and paired fins scaly basally. Supra-orbital tentacle 1⅕ times eye. Scales with 11 to 14 basal radiating striae; 50 or 51 slender, uniform apical denticles, with 6 to 8 transverse series of basal elements; circuli fine.

D. XII, 11, fourth spine 3⅔ in total head length, third ray 2⅘ to 3⅓; A. III, 5, I, second spine 3¾, second ray 2⅔ to 3; caudal 2 to 2⅛, truncate behind; least depth of caudal peduncle 4⅗ to 5⅕; pectoral 1⅔ to 1⅘, rays I, 16; ventral I, 5, fin 2⅛ to 2 1/16 in total head length.

In alcohol brown, more or less uniform. Iris grayish. Fins uniform brownish, with dark shades to dorsals and some dark specks on pectoral and caudal.

Hawaiian Islands.

873

U. S. N. M., No. 64529. Hilo. Bureau of Fisheries. Length 255 mm.

C. H. S. P., No. 66366 and 66367. Honolulu, Hawaii. 1929. R. W. Wehrle. Length 250 to 268 mm.

Inermithe nematophthalma (Günther)

Sebastes nematophthalmus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 99, 1860 (type locality, "Isle de France?"; West Indies); Rep. Voy. Challenger, vol. 1, pt. 6, p. 52, 1880 (Philippines, in 82 fathoms).

Skin minutely asperous, slightly
larger granules over preorbital.
D. XI, 26 or 27, sixth spine 1 2/5 to 2
in head, sixth ray 1 1/8 to 2 1/4; A. II, 27 or
28, second spine 2 1/2 to 3, fifth ray 1 2/3
to 1 7/8; caudal truncate or hind edge
slightly convex, fin 1 to 1 4/5, upper

Sebastichthys nematophthalmus

Bleeker, Rech. Faune Madagascar, Pt. 4, p. 87, 1874 (reference). — Sauvage, Hist. Nat. Madagascar, Poiss., p. 516, 1891 (reference).

Men the nematophthalma Jordan and Richardson, Philippine Journ. Sci., p. 51, 1910 (reference). — Jordan, Evermann, Clark, Rep. U.S. Fish. Comm. Appx., Pt. 2, p. 372, 1928 (1930) (reference).

Depth 3 1/2 in total; head 3. Snout little longer than eye; eye 4 in head; maxillary reaches 1/2 in eye, expanded terminally; rather narrow band of villeform teeth in each jaw, ^-shaped band on vomer, also band on each palatine; interorbital 11 in head, concave. Spines of head very acute and prominent in young, more obtuse with age; 2 tubinal spines; 5 spines in series on each side of occiput between orbit and nape of neck; 2 between orbit and scapula; preorbital with 2 strong, recurved spines at lower edge; suborbital ridge with 3 spines; 4 preopercular spines, uppermost strongest and at end of suborbital ridge; opercle with 2 flat spines; pair of spines at throat.

Scales 40 or 41 in lateral count, rather irregularly arranged. Predorsal scales forward to hind angle of orbit, to preorbital an side and to mouth angle laterally. Long tapering filament above hind angle of orbit.

D. XI, I, 10, origin immediately behind vertical from suprascapula, third and fourth spines $2\frac{3}{5}$ in head, soft fin very little higher than spinous fin; A. III, 5, second spine strong, rather longer than third dorsal spine; caudal subtruncate; pectoral reaches anal; ventral reaches vent.

Appears to have been uniform red. Length 350 mm. (Günther.

Philippines, Mauritius. Günther also identified a smaller specimen 163 mm. from the West Indies with this species.

Inermia bandanensis (Bleeker)

Scorpaena bandanensis Bleeker, Nat. Tijds. Ned. Indië, vol. 2, p. (226) 237, 1851 (type locality, Banda, Neira); vol. 6, p. 204, 1854 (Timor, Kupang); vol. 8, p. 445, 1855 (Kokos Islands, Indian Ocean); vol. 11, p. 385, 1856 (Kajeli, Buru); vol. 13, p. 56, 1857 (Kajeli), p. 371 (Sangi); vol. 15, p. 199, 1858 (Goram), p. 458 (Kokos Islands); vol. 16, p. 240, 1858 (Kokos Islands); vol. 18, p. 353, 1859 (Bawean); vol. 19, p. 330, 1859 (Patjitan, Java); vol. 20, p. 142, 1859-60 (Cocos); Act. Nov. Ind. Heerl., vol. 2, No. 7, p. 4, 1857 (Amboina); vol. 3, No. 4, p. 2, 1857-58 (Tanawangko); vol. 5, No. 8, p. 1, 1858-59 (Tobariri, Celebes); vol. 6, No. 2, p. 4, 1859 (Doreh,

depth 2½ to 3 in total. Caudal emarginate. Reddish. Head clouded with reddish gray. Body, caudal and bases of dorsal and anal densely spotted with reddish brown. (Günther.)

Reaches 305 mm. according to Valenciennes.

Possibly the imperfectly described Amphacanthus firmamentum Valenciennes[1]

---

[1] Hist. Nat. Poiss., vol. 10, 1835, p. ~~104~~ 142.

Samarang.

---

may have been intended for this species. It is noticed as follows:

D. XIII, 10; A. VII, 9; caudal little emarginate. Back blue, paler below, everywhere strewn with numerous orange brown spots. Front and opercle greenish. Cheeks with 3 oblique lines with yellowish intervals. Fins gray, end of dorsal with oval green spot. Length 152 mm.

~~— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 117, 1860 (Fiji?)~~ (879

New Guinea); ~~Bleeker~~, Arch. Néerl. Sci. hat., Harlem, vol. 2, p. 398, 1867 (Halmahera).

~~Schmeltz, Cat. Mus. Godeffroy, No. 5, p. 5, 1868 (Samoa)~~

— Kner, Reise Novara, Fische, p. 116, 1867 (Java). — Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, Ser. 2, vol. 2, p. 299, 1868 (Waigiu). —

~~Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 15, 1869 (Samoa); Fiji (Islands); (Kellegrin, Bull. Soc. Philom. Hist. nat., Paris, 15 Bull., No. 4, p. 229, 1898 (Hartlaub).~~

~~No. 7, p. 43, 1899 (South Sea~~

— Mc Culloch, Austral. Mus. Mem., No. 5, pt. 3, p. 384, Nov. 28, 1929 (reference).

— Weber, Siboga Exped., vol. 65, Fische, p. 495, 1913 (Paternoster Island, Saman, Lamakera, Macassar, Borneo Bank, Sulu, Siau, Great Sangi, Karakelang, Salibabu, north Ceram, Sula Besi, Kabena, Nusa Laut, Timor, High Kei, Rotti).

1352

~~Nizamus chrysopilos (Bleeker).~~

Amphacanthus chrysopilos Bleeker,
Nat. Tijds. Ned. Indië, deel 3, 1852, p. (53)
66. Singapore.

Amphacanthus melanopilus Bleeker.
l.c., deel 7, 1854, p. 431. Batavia.

Paracorphaena bandanensis Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 26, pl. 2, fig. 2, 1876 (Cocos, Bawean, Celebes, Sangi, Timor, Buru, Ceram, Amboina, Nusa Laut, Banda, Goram, Halmahera, Aru, Waigiu); Arch. Néerl. Sci. Nat., Harlem, vol. 13, p. 37, 1878 (New Guinea).

— Fowler, Mem. Bishop Mus., vol. 10, p. 285, 1928 (compiled); vol. 11, no. 5, p. 348, 1931 (reference).

Merinthe bandanensis Jordan and Seale, Bull. Bur. Fisher, vol. 25, p. 374, 1906 (reference).

22, 1860, p. 113 (Burm). — Bleeker, Verh. Bat. Genoot. (Mal. Sch. Bengal), deel 25, 1853, p. 48. — Bleeker, Act. Soc. Ind. Neerl., vol. 1, no. 3, 1856, p. 4 (Manado), p. 8 (Macassar); l.c., vol. 3, no. 4, 1857–58, p. 3 (Manado, Tanawangko); l.c., vol. 3, no. 5, 1857–58, p. 2 (Macassar); l.c., vol. 3, no. 9, 1857–58, p. 2 (Padang, Sumatra); p. 4 (Trussan); l.c., no. 8, 1858–59, p. 2 (Manado, Celebes). — Kner, Reise. Novara, Fische., 1866, p. 207 (Java and Pulupit).

Teuthis guttata Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 320 (compiled). — Bleeker, Verslag. Akad. Wet. Amsterdam, deel 2, series 2, 1868, p. 291 (Rio, Bintang). — Bleeker, Ned. Tijds. Dierk., deel 1, 1863, p. 240 (Obi).

Rhynchacanthus chrysopilus

Scorpaena aplodactylus Bleeker, Nat. Tijds. Ned. Indie, vol. 3, p. (690) 698, 1852 (type locality, Wahai, Ceram); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 3, p. 4, 1856 (Manado); vol. 1, no. 5, p. 5, 1856 (Amboina); Ned. Tijds. Dierk., vol. 1, p. 269, 1863 (Atapupu, Timor); Verslag. Kon. Akad. Wet. Amsterdam, vol. 16, p. 365, 1864 (Noessa Laut; Moluccas), p. 368 (Aru Islands; Moluccas).

Scorpaena haplodactylus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 117, 1860 (Feejee Islands).

— Schmeltz, Cat. Mus. Godeffroy, no. 3, p. 8, 1866 (Samoa); no. 4, p. 15, 1869 (Samoa; Viti Islands); no. 7, p. 73, 1879 (South Sea Islands).

— Pellegrin, Bull. Mus. Hist. Nat., Paris, vol. 4, p. 229, 1898 (Mariannes).

Liyanus guttatus (Bloch).

Chaetodon guttatus Bloch, Naturges. Ausl. Fische, Band 3, 1787, p. 55, plate 196. Japan.
— Lichtenstein, Descript. Animal., 1844, p. 286 (Tonga and New Caledonia).

Amphacanthus guttatus Valenciennes, Hist. Nat. Poiss., vol. 10, 1831, p. 99 (no locality). — Bleeker, Verh. Bat. Genoot. (Madura), deel 22, 1849, p. 5 (Kammal). — Bleeker, Nat. Tijds. Ned. Indië, deel 3, 1852, p. 52 (Singapore); l.c., deel 5, 1853, p. 154 (Macassar); l.c., deel 6, 1854, p. 457 (Amboina); l.c., deel 7, 1854, p. 226 (Macassar); l.c., deel 9, 1855, p. 282 (Macassar); l.c., deel 10, 1856, p. 347 (Rio, Bintang); l.c., deel 12, 1856, p. 193 (Ternate), p. 230 (Batu); l.c., deel 13, 1857, p. 56 (Kajeli, Buru), p. 372 (Banda); l.c., deel 15, 1858, p. 242 (Singapore); l.c., deel 18, 1859, p. 361 (Blinju, Bantam); l.c., deel 19, 1859, p. 333 (Karangbolong, Java); l.c.; deel

Scopaena haplodactylus

— Regan, Ann. natal hist., p. 247, 1908 (Kosi Bay). — Gilchrist and Thompson, Ann. durban hist., vol. 1, pt. 4, p. 408, 1917 (reference). — Barnard, Ann. South African hist., vol. 21, pt. 2, p. 903, Oct. 1927 (natal; zululand). — Fowler, Proc. Acad. nat. sci. Philadelphia, vol. 86, p. 482, 1934 (durban, natal).

Scorpaena haplodactyla Steindachner, Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 56, pt. 1, p. 311, 1867 (Cape York).

Blue, with hexagonal-golden dots standing-densely together, covering head, body-and vertical fins.

East Indies, Philippines, Melanesia, Polynesia.

30627 U.S.N.M. New Guinea. Australian Museum. Length 272 mm. depth 2 1/8. Caudal deeply forked, lobes pointed. Ground color brown, with close set, small, round spots all over trunk and on vertical fins, becoming very small and numerous on rayed portions terminally. Spots on head larger and less crowded than on trunk.

52494 U.S.N.M. Apia, Samoa. Bureau of Fisheries. 3 examples of similar size to above, which appear to agree.

Depth 2 2/3; head 2 2/5, width 1 1/3. Snout 4 in head from snout tip; eye 3 1/3 to 3 3/5, greater than snout or interorbital; maxillary reaches 1/2 in eye, expansion 1 1/2 to 1 3/4 in eye, length 1 7/8 to 2 1/10 in head from snout tip; teeth finely villiform, in bands in jaws, on vomer and palatines, none on tongue; interorbital 6, deeply concave. Gill rakers 5+10, lowest 4 as rudiments, all short, lanceolate, 4/5 of gill filaments, which 2 1/2 in eye. Supraorbital cirrus equals eye; front nostril with short cirrus; 5 spines above eye with postorbital longest, followed by suprascapular and 3 smaller spines close above;

pair of parietals and pair of occipitals; 2 opercular spines; strong spine directed down from preorbital and 2 spines from suborbital stay on cheek; lower preopercle edge with 5 spines, largest uppermost. Scales 42 or 43+2 in lateral line; tubular scales 21 or 22+1 in lateral line; 6 scales above lateral line, 11 below. Scales with 9 basal radiating striae; 18 rather strong, slender, apical denticles; circuli moderately fine.

D. XII, 9, I, third spine 2 1/8 to 2 1/4 in total head length, second ray 1 7/8 to 1 9/10; A. III, 5, I, second spine 2, first ray 1 3/4 to 1 4/5; caudal 1 1/5 to 1 3/4, convex behind; least depth of

caudal peduncle 3 3/5 to 4; pectoral 1 1/8 to 1 1/5; ventral 1 3/5.

Light brown generally, mottled or marbled with darker, also several dark to blackish clouded areas, as 2 or 3 on side of body. Two blackish bars from hind eye edge and broader one down over cheek to preopercle edge. Lower jaw with 5 dark bars on each ramus. Dorsal pale gray, with dusky clouding; over spinous fin more extensive more basal on soft fin, which terminally with less intense shades. Caudal with blackish basal bar and outer half mottled with blackish gray. Anal marbled with blackish gray, as 5 irregular cross

bars anteriorly. Iris gray.
Natal, East Indies, Queensland,
Polynesia.

A. N. S. P., two examples. Natal.
1931. H. W. Bell Marley. Length
40 to 47 mm.

Genus Scorpaena Linnaeus

Scorpaena Linnaeus, Syst. Nat., ed. 10, pt. 1, p. 266, 1758. (Type Scorpaena porcus Linnaeus, designated by Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 3, 1876.)

Parascorpaena Bleeker, Verh. Kon. Akad. Wet. Amsterdam, ser. 2, vol. 9, pt. 3, p. 295, 1876. (Type Scorpaena picta Kuhl and Van Hasselt, orthotypic.)

Sebastapistes (Gill) Streets, Bull. U. S. Nat. Mus., no. 7, p. 62, 1877. (Type Scorpaena strongia Valenciennes. Designated by Jordan, Genera of Fishes, pt. 3, p. 397, 1919.)

Pseudosebastes Sauvage, Arch. Mus. Hist. Nat., Paris, ser. 2, vol. 1, p. 113, 1878. (Type Sebastes bougainvillii Cuvier, monotypic.)

Body oblong or ovate, somewhat compressed. Head large, moderately compressed, rough above. Mouth moderate. Eye moderate to large, advanced or in front half of head, high. Mouth large, lower jaw protruded or not. Maxillary extends below eye, expanded terminally. Bands of villiform teeth in jaws, on vomer and palatines. Bones of head scarcely cavernous, more or less uneven with spinous ridges, often with flaps or filaments. No air bladder. Vertebrae 24, of which 14 caudal. Scales mostly ctenoid, moderate, often with flaps or filaments. Head naked above. Lateral line continuous, axial. Dorsal with 12 or 13 stout spines, rays 9 or 10. Anal spines 3, second

usually longest and rays 5. Caudal moderate, rounded or truncate. Pectoral large, rounded, base broad, procurrent, some or all rays divided and lower simple. Ventral inserted behind pectoral.

Species numerous in tropical seas. Most are variably and brightly colored.

Accompanying letter 1908

U. S. N. M., No.

Albatross Collection 6462.

D. 5305. N. lat. 21°54', E. long. 114°46', China Sea, vicinity of Hong Kong. In 37 fathoms. October 24, 1908. Length 98 mm. Type.

U. S. N. M., No.

Albatross Collection 3026. D. 5303. N. lat. 21°44', E. long. 114° 48', China Sea, vicinity of Hong Kong. In 34 fathoms. August 9, 1908. Length 81 mm.

U. S. N. M., No.

Albatross Collection 3179 to 3181.

D. 5442. San Fernando Point Light, N. 39° E., 8.4 miles (N. lat. 16°30'36", E. long. 120° 11'6"), west coast of Luzon. In 45 fathoms. May 10, 1909. Length 58 to 81 mm. Four examples.

U. S. N. M., no.
Albatross Collection. D. 5266.
Same data. Length 147 to 155
mm. Paratypes.
U. S. N. M., no.
Albatross Collection. D. 5135.
Jolo Light, S. 46° W., 11.90 miles
(N. lat. 6° 0' 11' 50", E. long. 121° 8' 20"),
vicinity of Jolo. Dn 161 fathoms.
February 7, 1908. Length 155 mm.
U. S. N. M., no. 1800, 1801. Albatross Collection. D. 5212. Panal-
angan Point, S. 54° 30' E., 14.50
miles (N. lat. 12° 4' 15", E. long.
124° 4' 36"), east of Marbate

Island. Dn 108 fathoms. April 20, 1908. Length 148 to 152 mm. Two examples. Type.
U. S. N. M., no.
Tubig Point, N. 49° E., 5 miles
Albatross Collection. 2935. D. 5392.
(N. lat. 12° 12' 35", E. long. 124° 2' 48"),
[illegible] Island, Marbate

Vcompanied by

914

D. 5266. Matorcot Point, S. 22° E., 7 miles (N. lat. 13° 44' 36", E. long. 120° 59' 15"), Verde Island Passage and Batangas Bay. In 100 fathoms. June 8, 1908. Length 172 mm. Type.

U. S. F. C. Jn, No.

Albatross Collection 1637 [661].

U. S. N. M., No. . D. 5134.

February 7, 1908. Length 32 mm.

916

In 135 fathoms. May 13, 1909.
Length 133 mm.

Analysis of Species

Parascorpaena

a.' Parascorpaena. Scales 50 or less along lateral line.

b.' No flap on inner base of pectoral.

c.' Eye greater than snout.

d.' Scales 50 in lateral line; eye $2\frac{3}{4}$ in head. albo-brunnea.

d.^{2} Scales 36 to 44 in lateral line; eye 4 in head. colorata.

c.^{2} Eye subequal with snout.

e.' Scales 28 in lateral line. voeltzkowi.

e.^{2} Scales 30 in lateral line. mossambica.

e.^{3} Scales 37 or 38 in lateral line.

f.' Maxillary reaches $\frac{1}{2}$ in eye. bynoensis.

f.^{2} Maxillary reaches hind eye edge. zanzibarensis.

e.^{4} Scales 45 in lateral line.

g.' Maxillary reaches hind eye edge. dentata.

g.[2] Maxillary reaches $\frac{1}{3}$ to $\frac{1}{2}$ in eye.

h.' Orbital tentacle fringed, shorter than eye; pectoral axil scarcely spotted. miostoma.

h.[2] No orbital tentacle; pectoral axil with white blotches. nuchalis.

c.[3] Eye less than snout, greater than interorbital.

i.' Dorsal without black blotch.

j.' Maxillary reaches $\frac{1}{2}$ in eye.

k.' Eye 3 to 4 in head. asperella.

k.[2] Eye 4 $\frac{3}{4}$ in head. natalensis.

j.[2] Maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ in eye. fimbriata.

j.[3] Maxillary reaches hind eye edge. picta.

i.[2] Large black blotch on dorsal between seventh to tenth spines. rhodocrous.

b.[2] Flat flap on inner base of pectoral; interorbital space wide and shallow. izensis.

a.[2] Lepiscorpaena new subgenus.
Scales 65 in lateral line. cookii.

Scorpaena albo-brunnea Günther

Scorpaena albo-brunnea Günther, Journ. Mus. Godeffroy, vol. 2-3, fts. 5-6, p. 77, 1874 (type locality, Pelew Islands). — Schmeltz, Cat. Mus. Godeffroy, no. 6, p. 113, 1877 (Pelew Islands). — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 29, 1884 (Pelew Islands).

Sebastapistes albobrunneus Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (reference). — Fowler and Ball, Bishop Mus. Bull.; No. 26, p. 20, 1925 (Pearl and Hermes Reef). — Fowler, Bishop Mus. Bull., No. 38, p. 21, 1927 (Christmas Islands; Howland Island). — Fowler, Mem. Bishop Mus., vol. 10, p. 287, 1928 (Honolulu, Waikiki, Honomuni, Palmyra, Pearl and Hermes Reef, types of Sebastapistes coniorta and S. galactacma); vol. 11, No. 5, p. 348, 1931 (Honolulu; Suva); vol. 11, No. 6, p. 429, 1934 (Waikiki Reef).

? Scorpaena laniaria Cuvier, Hist. Nat. Poiss., vol. 4, p. 238, 1829 (type locality, Guam).

Sebastapistes laniarius Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 377, 1905-(1906) (reference).

Sebastapistes coniorta Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 495, fig. 39, 1902 (1903) (type locality, Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 536, 1902 (1904) (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 458, 1903 (1905) (Honolulu; Waikiki). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (1906) (reference). — Jordan and Jordan, Mem. Carnegie Inst., vol. 10, no. 1, p. 54, Dec. 1922 (Hawaii). — Fowler and Ball, Bishop Inst. Bull., no. 26, p. 20, 1925 (Pearl and Hermes Reef).

U. S. N. M., No. 50693. Honolulu.
O. P. Jenkins. 1899. Type of
Nebrastapistes coniorta. Length
69 mm.

U. S. N. M., No. 58519. Honolulu.
E. L. Berndt. Length 84 mm.
Ex Nebrastapistes coniorta.
Scales 41 + 3 in lateral line.

U. S. N. M., No. 87486. Hawaii.
Otto Deacner. Length 53 to 60 mm.
Six examples.

U. S. N. M., No. 89540. Hilo, Hawaii. January 1930. Collected by Pohina. Length 40 to 50 mm. Two examples. Maxillary reaches middle of eye. Scales 42 + 3 in lateral line.

Scorpaena coloratas Gilbert

Scorpaena coloratus Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 627, fig. 243, 1903 (1905) (type locality, South of Molokai, in 43 to 73 fathoms). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (reference).

Sebastapistes bynoensis (not Richardson) Fowler, Mem. Bishop Mus., vol. 10, p. 289, 1928 (part).

depth 2 2/5 to 2 3/5; head 2 to 2 1/5, width 1 3/5 to 2. Snout 3 3/4 to 3 7/8 in head; eye 3 1/5 to 3 1/3, greater than snout or interorbital; maxillary reaches 2/5 to 1/2 in eye, expansion 2 to 2 3/4 in eye, length 2 1/5 to 2 2/5 in head; teeth minutely villiform, in wide band above in jaws, narrower below, and still narrower and small short bands on vomer and palatines; interorbital 5 1/4 to 7, deeply concave. Gill rakers 5 + 13, of which 5 above and 6 below rudimentary, clavate, 1 1/2 in gill filaments, which 4 in eye. Pair of small nuchal spines, 1 antero-supraorbital, 2 postero-supraorbitals, very small coronal, 1 large occipital and 1 low nuchal, 1

supracapula with 2 large postoculars forward besides a very small spine close to hind eye edge; 2 wide set broad preorbital spines; 3 spines on suborbital stay, followed rather strong spine at hind edge of preopercle, with small subbasal spine; lower preopercle edge with 4 more low strong spines; opercular spines 2, wide set. Deep quadrangular pit at occiput.

Scales 37+3 close above along lateral line; tubular scales 24+1 in lateral line; 7 scales above to soft dorsal origin, 12 below. Head largely naked, except patch of small scales on opercle above. Body and head with more or less numerous fleshy

flap; pair at nasal spines, antero-supraorbital, longer one behind first postero-supraorbital, at occipital pair, 1 behind each of preopercle spines and on lower preorbitals. Scales with 9 to 11 basal radiating striae; 28 to 32 short, slender, opercular denticles, with basal elements in 2 or 3 transverse series; circuli fine.

D. $\frac{XII}{=}$, 9, $\frac{I}{=}$, fourth spine 2 1/6 to 2 2/5 in head, second ray 2 1/3 to 3 1/2; A. $\frac{III}{=}$, 5, $\frac{I}{=}$, second spine 2 to 2 2/5, second ray 2 to 2 2/5; caudal 1 1/2 to 1 3/5, little convex behind; least depth of caudal peduncle 4 2/5 to 4 4/5; pectoral 1 2/5 to 1 3/5, rays $\frac{II}{=}$, 5, $\frac{X}{=}$; ventral $\frac{I}{=}$, 5, fin 1 3/5 to 1 4/5 in total head.

Uniform pale brown. Iris whitish. Fins pale to whitish. Brown blotch on membranes of dorsal between eighth and ninth spines. Body with obscure darker shadings.

Hawaiian Islands. A pale or light colored species.

U. S. N. M., No. 51631. Off south coast of Molokai. Albatross Collection (3849). Length 80 mm. Type.

U. S. N. M., No. 51667. Hawaii. Albatross Collection. Length 59 to 69 mm. Two examples. Paratypes.

Scorpaena voelzkowi Jatzow and Lenz

Scorpaena voelzkowi Jatzow and Lenz, Abhandel. Senckenberg. naturf. Gesell, Frankfurt, vol. 21, p. 503, pl. 34, fig. 1, 1899 (type locality, Zanzibar).

depth 2 3/4; head 2 1/4. Snout 3 1/2 in head from snout tip; eye 3 7/8, subequal with snout, greater than interorbital; maxillary reaches opposite hind eye edge, length 2 in head from snout tip; palatine teeth; interorbital deeply concave, with 2 arched channels. Suborbital spines 3. Scales 28 in lateral line, 7 above, 8 below. without filaments; 1 supraorbital filament long as eye. Head scaleless.

D. XI, 11, fifth spine 2 2/3 in total head length, fifth ray 2 7/8, A. III, 5, second spine 2 1/4, second ray 2 1/2; caudal 1 3/4, convex behind; least depth of caudal peduncle 5 1/4; pectoral 1 3/5, rays II, 4, IX; ventral rays I, 5, fin 2 2/5 in total head length.

Body and fins brown, marbled with lighter and darker. Upon mandible and middle of anal numerous, darks, sharply contrasted transverse lines in bands, more or less parallel. Length 75 mm. (Jatzow and Lenz.)

Zanzibar.

Scorpaena mossambica Peters

Scorpaena mossambica Peters, Archiv Naturg., p. 241, 1855 (type locality, Mozambique).

— Sauvage, Hist. Nat. Madagascar, p. 295, pl. 33, figs. 1–1a, 1891 (type).

— Jatzow and Lenz, Abhandel. Senckenberg Naturf. Gesell. Frankfurt, vol. 21, p. 504, 1899 (Zanzibar).

— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 903, Oct. 1927 (compiled).

Depth 2 1/2; head 2 1/3. Snout equals eye; eye 3 1/2 in head; maxillary reaches opposite hind eye edge; vomerine teeth in open V-shaped band and palatine band short and narrow; interorbital space without ridges. Pair of nasal spines; 3 supraorbital spines; temporal, occipital and suborbital spines present.

Tubular scales 30 in lateral line. Supraorbital tentacle long, fringed.

D. XII, 9, fourth spine longest; A. III, 5, second spine strongest; pectoral rays 4, XI,

Reddish, marbled with black. Three irregular blackish bands on anal. Pectoral with 3 less marked narrow bands and grayish axil with an indistinct yellowish blotch.

(Barnard.)

Mozambique. Length 95 mm. according to Vaillant.

Two examples. Subat Bay, Luzon, tide pool. June 23, 1909. Length 55 to 58 mm.

~~Three examples.~~ 22397. Mahinog, Camiguin Island. August 3, 1909. Length 20 to 37 6 mm. Four examples. Largest with large, white, contrasted opercles.

One example. Maculabo Island, tide pool. June 14, 1909. Length 27 mm.

Two examples. Marangas Island, shore in coral head. February 10, 1908. Length 33 to 52 mm.

One example. Nogas Point, Panay. February 4, 1908. Length 15 mm.

Three examples. Tablayan, Mindoro, tide pools. December 13, 1908. Length 22 to 38 mm.

Three examples. Tomahu Island, tide pools. December 11, 1909. Length 28 to 43 mm.

21702. Santiago River, Pagapas Bay, Luzon. February 20, 1909. Length 60 mm.

947a

D 5254. Linao Point, N. 44° E., 0.7 mile (N. 7° 05' 42" Lat., ~~E~~ E. 125° 39' 42" Long.), Gulf of Davao. In 21 fathoms. May 18, 1908. Length 45 mm. A spinous dorsal with slightly dark blotch on membranes of eighth to eleventh spines, and caudal with dark transverse basal bar.

Scorpaena bynoensis Richardson

Scorpaena bynoensis Richardson, Voy. Erebus and Terror, Ichth., p. 22, pl. 14, figs. 3-5, 1845 (type locality: north west coast of Australia). — Schmelty, Cat. Mus. Godeffroy, no. 7, p. 43, 1879 (Rarotonga).

— Mc Cullock, Rec. Austral. Mus., vol. 15, no. 1, p. 38, 1926 (New Hebrides; Samoa).

Sebastapistes bynoensis Whitley, Rec. Austral. Mus., vol. 16, no. 1, p. 29, 1927 (Samoa; New Hebrides). — Fowler, Mem. Bishop Mus., vol. 10, p. 289, 1928 (Fiji, Borabora, Makemo, types of Scorpaena baberi, Raiatea, Guam, Apia); vol. 11, no. 5, p. 349, 1931 (reference).

Michaelmas Cay

— Herre, Journ. Pan Pac. Res. Inst., vol. 7, no. 1, p. 5, Jan.-March 1932 (Tahiti). — Fowler, op. cit., vol. 11, no. 6, p. 429, 1934 (Samoa, Suva, New Hebrides).

Sebastes tristis Klunzinger, Verh. zool. bot. Ges. Wien, vol. 20, p. 802, 1872 (type locality, Red Sea). — Günther, Journ. Mus. Godeffroy, vol. 2-3, pt. 5-6, p. 77, fig. (head above), 1874 (Rarotonga). — Peters, Monatsb. Akad. Wiss. Berlin, p. 834, 1876 (1877) (Fiji). — Boulenger, Ann. Mag. Nat. Hist., London, ser. 6, vol. 20, p. 373, 1897 (Rotuma).

Sebastapistes tristis Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 377, 1905 (Philippines); vol. 26, p. 37, 1906 (Panay). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, p. 102, 1906 (Bacon).

— Jordan and Richardson, Philippine Journ. Sci., vol. , p. 52, 1910 (reference). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 315, 1911 (Borabora). — Fowler, Bishop Mus. Bull., No. 22, p. 11, 1925 (Guam).

Sebastapistes tristis Herre, Fishes Philippine Exped., p. 65, 1931 (1934) (Alaba, Unison, Culion, Dumaguete). (error).

Scorpaena bakeri Seale, Occas. Pap. Bishop Mus., vol. 1, no. 3, p. 120, 1900 (type locality, Guam); p. 216 (Honolulu).

Sebastapistes mivifer Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, p. 791, fig. 10, 1905 (type locality, Negros, Philippines). — Jordan and Richardson, Philippine Journ. Sci., vol. , p. 52, 1910 (reference).

Sebastapistes laotale Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, fig. 72, 1905 (1906) (type locality, Apia, Samoa). — Fowler and Silvester, Marine Pap. Carnegie Inst., p. 124, 1922 (Pago Pago).

Scorpaenopsis laotale Kendall and Goldsborough, Mem. Mus. Comp., vol. 26, p. 314, 1911 (Mabemo, Paumotus).

Sebastapistes nivifer Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, p. 791, fig. 10, 1905 (1906) (type locality, Negros). — Jordan and Richardson, Philippine Journ. Sci., p. 52, 1910 (reference).

Scorpaena cookei (not Günther) Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, p. 79, 1906 (Raiatea).

Del Vea, Philippines, Northwest Australia, Indonesia, Micronesia, Polynesia. A species of small size and brown by the posterior pseudotidal spine directed backward, and at least several of the uppermost pectoral rays are divided. Coloration variegated and variable, rarely with many alternating black and white bars.

Five examples. Batan Island tide pool. June 5, 1909. Length 27 to 40 mm.

Twelve examples. Batan Island tide pool. December 11, 1909. Length 34 to 57 mm.

[1834.] Cebu market. August 28, 1909. Length 47 to 53 mm. Three examples.

Two examples. Cebu market. March 28, 1909. Length 37 to 86 mm.

8570. Cebu market. April 5, 1908. Length 65 mm.

14191. Cebu market. August 24, 1908. Length 56 mm.

14192. Cebu market. August 24, 1908. Length 58 mm.

21772. Cebu market. March 20, 1909. Length 47 mm.
One example. Cebu market. March 22, 1909. Length 36 mm.
One example. Davao, Mindanao. May 16, 1908. Length 43 mm.

One example. Mindanao River below mouth, Cotabato. May 24, 1909. Length 40 mm.

Seventeen examples. Pilas Island. September 12, 1909. Length 40 to 58 mm.

D. 5442. San Fernando Point Light, N. 39° E., 8.4 miles (N. Lat. 16°30'36", E. long. 120°11'6"), west coast of Luzon. 3 n 45 fathoms. May 11, 1909. Length 34 mm. No palatine teeth. D. XII, 9.

D. 5611. Buka Buka Island (E.) S. 43° W., 6.4 miles (S. Lat. 0°40'30", E. 121°50'0"), Gulf of Tomini, Celebes, Dutch East Indies. November 19, 1909. Length 18 mm.

U. S. N. M., No. 51999. Negrox. Bathford Dean. Length 55 mm. As Sebastapistes laotale.

U. S. N. M., No. 55949. Bureau of Fisheries (3612). Length 125 mm. As Sebastapistes tristis.

U. S. N. M., No. 66028. Borabora, Society Islands. Albatross Collection. 1899. Length 60 mm. As Sebastapistes tristei.

U. S. N. M., No. 82930. Fiji. Wilkes Exploring Expedition. Length 37 to 55 mm. Four examples. As Sebastapistes tristei.

U. S. N. M., No. 52053. Negros. Bathford Dean. Length 24 mm. Type of Sebastapistes mivifer. Much faded. Jordan and Seale's figure is inaccurate as the entire prepectoral region is fully scaled, as I find by means of a lens.

U. S. N. M., No. 51761. Samoa. Bureau of Fisheries. Length 33 to 55 mm. Six examples. Type of Sebastapistes laotale largest specimen.

U. S. N. M., No. 66026. Makemo, Paumotus. Albatross Collection. October 21, 1899. Length 32 mm. Though now faded still with traces of light and dark bars on the mandibular rami.

Scorpaena zanzibarensis Playfair

Scorpaena zanzibarensis Playfair, Fishes of Zanzibar, p. 47, pl. 8, fig. 2, 1866 (type locality, Zanzibar).

— Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 34, 1880 (Levuka, Fiji).

Scorpaenopsis zanzibarensis Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (1906) (reference).

960

Sebastapistes zanzibarensis

Fowler, Mem. Bishop Mus., vol. 10, p. 289, 1928 (compiled); vol. 11, no. 5, p. 349, 1931 (reference).

Depth 2 4/7; head 2 1/4. Snout 4 in head from snout tip; eye 4 1/10, subequal with snout; maxillary reaches opposite hind eye edge, expansion 1/4 in eye, length 2 1/4 in head from snout tip; palatine teeth present; interorbital deeply concave, with scarcely any ridge at bottom.

Small nasal spine; at least 1 strong postero-supraorbital spine, followed by large spine in occipital depression behind eye and then row of 3 higher spines above opercle; 3? postocular spines and then suprascapular; 3 spines on ridge of suborbital stay posterior to eye, followed by one on preopercle, edge of which with 3 more below; 2 opercular spines, lower little advanced; strong humeral spine.

Scales 37 in lateral line; 7 above, 9 below. Head naked, except few scales on opercle. Small scales on prepectoral region and breast. Orbital tentacle 1 1/2 times eye, reaches base of first dorsal spine. Lateral line with rather long tentacles.

D. XII, 9, fourth spine 2 4/5 in total head length, fourth ray 2 1/8; A. III, 5, third spine 2 3/4, first ray 2 1/10; caudal 1 2/3, little convex behind; least depth of caudal peduncle 3 1/2; pectoral 1 1/2, rays I, 4, IV, I, 5, fin 2 in total head length.

Brown, marbled with darker and lighter. Dorsal without black spot. Caudal with 2 light cross bands. Pectoral axil marbled with light brown. Length 113 mm. (Playfair)

Zanzibar.

Scorpaena dentata Günther

Scorpaena dentata Günther, Journ. Mus. Godeffroy, vol. 2-3, pts. 5-6, p. 76, 1874 (type locality, Pelew Islands). — Boulenger, Ann. Mag. Nat. Hist., London, ser. 6, vol. 20, p. 373, 1897 (Rotuma).

Sebastapistes dentatus Jordan and Seale, Bull. Bur. Fisher, vol. 25, p. 376, 1905 (1906) (reference). — Fowler, Mem. Bishop Mus., vol. 10, p. 288, 1928 (copied).

depth 2 3/4; head 2 1/3. Snout long as eye; eye greater than interorbital; nostril above reached mid eye edge; mouth little inclined, lower jaw not projecting; upper jaw with groove, defined anteriorly by small band of teeth, lateral band more widened; front band of lower teeth moderately wide and intact, joined by narrow strip with lateral teeth and anterior teeth with some gradually strong canines in front row; median vomerine teeth on band; palatine teeth wider, band long as vomerine; interorbital width half of eye, deeply concave, with groove each side and arched. No groove below eye. Hind preorbital spine long, pointed, only slightly directed forward.

Scales 45 in lateral line. Supraorbital tentacle long as eye.

D. XII, 9, first strong, fourth

to seventh longest, 2 1/2 in head, D. A. III, 5.

Gray brown, marbled with white. Nape black and large pale blotch each side of tail under end of dorsal. Pectoral axil brownish, with clear spot above. Length 102 mm. (Günther.)

Pelew Islands; Rotuma.

966

Scorpaena mioxtoma (Günther

Scorpaena mioxtoma Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 65, 1880 (type locality, market of Yokohoma).

— Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 133, 1904 (reference).

Scorpaenopsis mioxtoma Jordan and Snyder, Annot. Zool. Japan., vol. 3, p. 99, 1901 (reference). — Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 128, 1920 (Tateyama, Boshiu).

depth less than head; head 2 1/3.
Eye long as snout; maxillary not extending backward to below middle of eye; anterior teeth form an open ^-shaped band; palatine teeth; interorbital space deeply concave, with pair of slight ridges within its concavity; vertex with quadrate depression, which rather broader than long and surrounded by spines. Upper jaw slightly overlapping lower;

Scales 45 in lateral line. Head nearly entirely scaleless. Orbital tentacles broad, fringed, shorter than eye. All cutaneous appendages on body, head and fins well developed.

D. XI, I, 10, fourth and fifth spines longest, 2/5 length of head and equal second anal spine, which, however, stronger; A. III, 5; 8 of pectoral rays branched.

Body and fins marbled with the usual colors of this genus, but without any peculiar markings. Pectoral axil scarcely spotted. Lower part of head white. Length 133 mm.

(Günther.)

Japan.

Scorpaena michalis Günther

Scorpaena michalis Günther, Journ. Mus. Godeffroy, vol. 2-3, pt. 5-6, p. 76, fig. (head above), 1874 (type locality, Raratonga); Rep. Voy. Challenger, vol. 1, pt. 6, p. 59, 1880 (Honolulu). — Boulenger, Ann. Mag. Nat. Hist., Ser. 6, vol. 20, p. 373, 1897 (Rotuma).

Sebastapistes michalis Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 377, 1905 (reference). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. , 1908 (Calayan); Philippine Journ. Sci., vol., , p. 52, 1910 (reference).

Depth $2\frac{3}{4}$; head $2\frac{1}{2}$. Snout long as eye; eye greater than interorbital; maxillary reaches $\frac{1}{2}$ in eye; mouth cleft moderate; band of palatine teeth not so long as vomerine band; deeply concave interorbital $\frac{1}{2}$ in eye; no groove below eye, though grooves in interorbital strongly marked and each end in horizontal line.

Scales 45 in lateral line. Skinny flaps moderately developed, none over eye.

D. XII, 9, fourth to seventh spines longest or $\frac{2}{5}$ of head; A. III, 5.

Head and body clear gray, marbled with light brown. Under parts white. Some large blackish blotches on head, not symmetrical or both sides. Blotch between third and fifth dorsal spines. Pectoral axil with white blotches. Length 75 mm. (Günther.)

Rarotonga.

Scorpaena asperella Bennett

Scorpaena asperella Bennett, Zool. Journ., vol. 4, p. 40, 1828 (type locality, Sandwich Islands). — Günther, Journ. Mus. Godeffroy, vol. 2-3, pts. 5-6, p. 80, 1874 (type).

Sebastapistes asperella Fowler, Bishop Mus. Bull., No. 22, p. 27, 1925 (Honolulu). — Fowler and Ball, Bishop Mus. Bull., No. 26, p. 20, 1925 (Laysan, French Frigates Shoal, Pearl and Hermes Reef, Ocean Island, Wake Island). — Fowler, op. cit., No. 38, p. 21, 1927 (Christmas Island); Mem. Bishop Mus., vol. 10, p. 287, 1928 (Hawaii, Pago Pago, Honolulu, Waikiki, Honomuni, Laysan, French Frigates Shoal, Pearl and Hermes Reef, Ocean Island, Wake Island, type of *Sebastapistes corallicola*); vol. 11, No. 5, p. 348, 1931 (Honolulu).

Scorpaena strongia Cuvier, Hist. Nat. Poiss., vol. 4, p. 323, 1829 (type locality, Oualan or Strong Island, Carolines).

Scorpoena strongia Lesson, Voy. Coquille, Zool., vol. 1, pt. 2, p. 213, 1830 (Oualan).

Scorpena strongia Quoy and Gaimard, Voy. Astrolabe, Zool., vol. 3, p. 688, pl. 11, fig. 2, 1834 (Carolines).

Scorpaena strongensis Günther, Cat. Fish. Brit. Mus., vol. 2, p. 105, 1860.

Sebastes strongia Klunzinger, Verh. zool. bot. Ges. Wien, vol. 20, p. 803, 1870 (Red Sea); Fische Roth. Meer., p. 71, 1884.

— Weber, Siboga Exped., vol. 65, p. 490, 1913 (Karakelang, Nusa Besi, Kabaena, Binongka).

Sebastapistes strongia Streets, Bull. U. S. Nat. Mus., No. 7, p. 62, 1877 (Honolulu).

Sebastapistes strongius Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (1906) (reference). — Fowler, Copeia, No. 112, p. 84, Nov. 20, 1922 (Hawaii).

Scorpaena cyanostigma Bleeker,
Nat. Tijdr. Ned. Indië, vol. 11, p.
(385) 399, 1856 (type locality,
Kajeli, Buru); vol. 13, p. 56, 1857
(Kajeli); Act. Soc. Sci. Ind.
Neerl., vol. 2, no. 7, p. 4, 1857
(Amboina).

Sebastichthys cyanostigma Bleeker,
Verh. Kon. Akad. Wet. Amsterdam,
vol. 16, no. 2, p. 17, pl. 5, fig. 4, 1876
(Buru; Amboina).

Scorpaena bailleui Vaillant, Rev. Mag. Zool., ser. 3, vol. 3, p. 278, 1875 (type locality, Hawaiian Islands).

Sebastapistes bailleui Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 455, pl. 72, 1903 (1905) (Honolulu, Waikiki, Hilo). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (1906) (reference). — Fowler, and Ball, Bishop Mus. Bull., No. 26, p. 19, 1925 (Pearl and Hermes Reef).

Sebastapistes coralicola Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 493, fig. 38, 1902 (1903) (type locality, Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 456, 1903 (1905) (types). — Fowler and Ball, Bishop Mus. Bull., No. 26, p. 19, 1925 (Pearl and Hermes Reef; Ocean Island).

Sebastapistes galactacma

Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 496, fig. 40, 1902 (1903) (type locality, Honolulu).—

Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 459, 1903 (1905) (type; Honolulu; Waikiki).

—Jordan and Jordan, Mem. Carnegie Inst., vol. 10, no. 1, p. 54, dec. 1922 (Hawaii).

—Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 376, 1905 (reference).

Sebastapistes galactacma Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 315, 1911 (Suva).

Sebastapistes albobrunneus (part)
Fowler, Mem. Bishop Mus., vol. 10,
p. 287, 1928 (types of Sebastapistes
galactacma, Hawaii, Suva,
Samoa).

Scorpaenodes guamensis (not
Quoy and Gaimard) Fowler, op.
cit., p. 289 (one Samoan example
from Steinberger).

Depth 2 1/2 to 3; head 2 1/5 - to 2 2/5, width 1 1/2 to 1 3/5. Snout 3/10 to 3 1/2 in head from snout tip; eye 3 to 4, 1 to 1 1/4 in snout and greatly exceeds interorbital; maxillary reaches hind eye edge or little beyond, upper jaw 1 1/5 to 1 3/4 in eye, length 1 7/3 to 2 4/5 in head from snout tip; interorbital 5 to 7 1/8. Gill rakers iv, 1 + 4, iv, obtuse or little lanceolate, several larger bifid, all asperous.

Pair of nasal spines, 1 antero-supraorbital and 3 or 4 postero-supraorbitals, followed by pair of coronal, parietal and occipital spines, 2 or 3 preorbital spine, anterior directed forward and other downward; ridge of suborbital stay more or less entire or ends in small spine behind; 5 or 6 preopercle spines, 2 divergent opercular spines, lower little in advance; strong ~~for~~ humeral spine.

Scales 34 to 41 + 2 or 3 close above and along lateral line; tubular scales 17 to 22 + 1 or 2; 5 to 7 scales above, 10 to 13 below, 4 to 6 predorsal. Head usually naked. Often no cutaneous flaps, or sometimes large flap from behind preorbital spine, or well developed supraorbital flap, long as eye. Scales with 7 to 11 basal radiating striae; 14 to 33 fine, numerous apical denticles. Young with cycloid scales and basal radiating striae 5 to 7.

D. XII, 9 or 10, fourth spine 2 to 2 1/8 in head, third ray 2 to 2 1/4; A. III, 5 or 6, second spine 1 7/8 to 2, second ray 1 7/8 to 2; caudal 1 3/5 to 1 7/8; least depth of caudal peduncle 3 3/5 to 3 4/5; pectoral 1 1/2, rays I, 5 or 6, IX or X; ventral rays I, 5, fin 1 3/4 to 2 in total head length.

Color greatly variable, some light, others very dark. In preserved specimens often white reticulations, fade more or less or entirely and it is only the dark spots which persist.

Red Sea, East Indies, Micronesia, Polynesia, Hawaii.

In this species there is a well marked transverse anterior depression or groove on the head immediately behind the eyes and the interorbital space. In the largest example the spines of the head are all large, robust and strong.

Jordan and Evermann wrongly give the scales at 42 in a lateral count in the type of Sebastapistes galactacma, though it shows and Jenkins's description says lateral line with 23 tubes. The original figure, reprinted by Jordan and Evermann, shows about 30 ± 3 scales close along and above course of lateral line.

U. S. N. M., No. 45092. Samoa.
A. G. Whitmee. Length 73 mm.
As Sebastapistes albobrunneus.
Long supraocular flap. Maxillary
reaches 4/5 in eye. Scales 36+3.
No black blotch on spinous dorsal.

U. S. N. M., No. 6584. Honolulu.
Pease Collection. Length 35 & 44
mm. Two examples. Like most
all small ones maxillary reaches
middle or only slightly
beyond middle of eye. Both
with black middorsal blotch.
D. XII, 10. Palatine teeth present.
= U. S. N. M., No. 15136. Samoa.

M. Steinberger. Length 67 mm.
No palatine teeth. Scales 30+3
in lateral line; tubes 22+2.
D. XII, 9. As Scorpaena guamensis.
= U. S. N. M., No. 15400. Honolulu
harbor. (Length 66 mm.) Dr. J. C.
Streets. Palatine teeth present.
D. XII, 9. As Scorpaena strongia.

U. S. N. M., No. 50691. Honolulu.
O. P. Jenkins. Length 106 mm.
Type of Sebastapistes coralliicola.

U. S. N. M., No. 50692. Honolulu.
O. P. Jenkins. Length 47 to 64 mm.
Largest of 3 examples No. 2175, type of Sebastichthys galactama, others paratypes.

U. S. N. M., No. 51046. Hawaii.
U. S. Fish Comm. Length 43 to 64 mm. Five examples. Two with black dorsal blotch. As Sebastapistes ballieui.

U. S. N. M., No. 55157. Hawaii.
U. S. Fish Comm. Length 53 mm. Scales 21+2 tubulder in lateral line. No black dorsal blotch.

U. S. N. M., No. 55183. Honolulu.
Albatross Collection. 1901. Length 87 mm. As Sebastapistes ballieui. Black spinous dorsal blotch on

U. S. N. M., No. 55220. Honolulu. Albatross Collection. Length 68 to 97 mm. Four examples. In 2 of largest a black submarginal blotch posteriorly on spinous dorsal. Maxillary variably to or nearly opposite hind eye edge. As Sebastapistes ballieui.

U. S. N. M., No. 55442. Hawaii. Albatross Collection. Length 39 to 63 mm. Eight examples. Tubular scales 20 or 21 + 2 or 3 in lateral line. Some with dark dorsal blotch. As Sebastapistes galactacma.

U. S. N. M., No. 55274. Honolulu Reef. Albatross Collection. Length 36 to 97 mm. Four examples. As Sebastapistes ballieui.

U. S. N. M., No. 55275. Honolulu Reef. Albatross Collection. Length 48 to 118 mm. Two examples. In larger maxillary extends little beyond eye. Dorsal with black blotch. As Sebastapistes ballieui.

U. S. N. M., No. 66027. Suva, Fiji. Albatross Collection. Length 44 mm. Tubular scales 20 + 2 in lateral line. Cat. Sebastapistes galactacma.

U. S. N. M., No. 78060. Honolulu. D. S. Jordan and B. W. Evermann. 1901. Length 112 mm. Cat. Scorpaena ballieui.

U. S. N. M., No. 92278. Hawaiian Islands, in coral. P. L. Galtsoff. July 26, 1930. Length 34 to 38 mm. Three examples. All with black dorsal blotch.

U. S. N. M., No. 92279. Hawaiian Islands. P. L. Galtsoff. July 30, 1930. Length 43 to 54 mm. Larger one without dark dorsal blotch, which present in smaller. Larger also covered with dark brown dots.

Scorpaena natalensis Regan

Scorpaena natalensis Regan, Ann. Natal Mus., vol. 1, pt. 1, p. 5, pl. 5, 1906 (type locality, Coast of Natal, 40 fathoms); vol. 1, pt. 3, p. 247, 1908 (Bird Island). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 408, 1917 (reference). {Ann. South African Mus., vol. 6, p. 236, 1908-10 (Durban).

— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 902, pl. 33, fig. 2, Oct. 1927 (False Bay; Natal; 20 to 40 fathoms).

Scorpaena scrofa (not Linnaeus) Regan, Ann. Natal Mus., vol. , p. 247, 1908 (Durban Bay). — Gilchrist and Thompson, Ann. South African Mus., vol. 6, p. 237, 1908-10 (Durban); Ann. Durban Mus., vol. 1, pt. 4, p. 408, 1917 (reference).

Scorpaena durbanensis (not Fowler) Gilchrist and Thompson, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, p. 253, 1925 (off Bluff, southeast, Natal coast).

Depth 2 1/2; head 2 1/4, width 1 2/5. Snout 3 3/5 in head, eye 4 3/4, 1 1/3 in snout, greater than interorbital; maxillary 1 3/4 ~~in head~~, reaches hind eye edge, expansion 1 1/4 in eye, length 1 3/4 in head; fine teeth in bands on jaws, on vomer and palatines; interorbital 1 3/4 in head, 1 2/5 in eye, deeply concave. Gill rakers 5+8, low points. Preopercle with 5 spines and 1 marginal flaps.

Scales 38+2 in lateral line; tubular scales 22 in lateral line; 6 scales above, 13 below; 4 predorsal. 7 flaps each side of snout tip and 1 from each preorbital spine. Long supraocular flap long as snout. Lateral line with 5 or 6 flaps. Scales with 11 to 13 basal striae.

D. XII, 9, fifth spine 2 2/5 in head, third ray 2 1/5; A. III, 5, second spine 2 1/3, second ray 2 1/3; caudal 1 1/5, hind edge convex; least depth of caudal peduncle 4; pectoral 1 1/2; ventral 1 5/6.

Dusky brown, splashed paler on sides, whitish below. Fins pale gray, dorsals with 4 ill defined basal blotches. Caudal with 3 broad dark transverse bands, same on pectoral and anal. Ventral pale basally, slightly dusky terminally.

South Africa, Natal.

A. N. S. P., one example. Off Bluff southeast, Natal coast. H. W. Bell-Marley. Length 103 mm.

Scorpaena fimbriata Steindachner and Döderlein

Scorpaena fimbriata (Döderlein) Steindachner and Doderlein, Denkss. Akad. Wiss. Wien, math.-naturw. Kl., vol. 49, pt. 1, p. 195, 1885 (type locality; Tokyo). — Nyström, Bih. Sv. Vet. Akad. Handl., Band 13, (no. 4, pt. 4,) p. 18, 1887 (Nagasaki).

— Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 98, 1901 (reference). — Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 131, 1904 (Wakanoura, Kobe, Misaki, Tokyo). — Franz, Abhand. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, p. 71, 1910 (Aburatsubo).

— Snyder, Proc. U. S. Nat. Mus.,
vol. 42, p. 428, 1912 (Tokyo).

Scorpaena neglecta (not Heckel 1840) Schlegel, Fauna Japonica, Pois., pt. 2-4, p. 43, pl. 17, fig. 4, 1843 (type locality, Bleeker, Verh. Batavia. Genoot. (Nat. Schth. Japan), vol. 25, p. 11, 1853 (reference); — Fowler, Hong Kong Naturalist, vol. 2, p. 302, fig. 10, 1931 (Hong Kong).

— Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 128, 1920 (Katwajiri, Satsuma).

— Jordan and Hubbs, Mem. Carnegie Inst., vol. 12, no. 2, p. 272, June 27, 1925 (Misaki).

Scorpaena maria Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, p. 365, pl., 1900 (type locality, Misaki, Japan); Annot. Zool. Japon., vol. 3, p. 99, 1901 (reference). — Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 133, 1904 (types). — Franz, Abhand. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, p. 72, 1910 (Yoka-hama; Akaratsubo).

depth 2 1/5 to 2 4/5; head 2 1/5 to 2 1/3, width 1 3/4 to 2. Snout 3 2/5 to 4 in head from snout tip; eye 4 to 5, 1 to 1 1/2 in snout, greater than interorbital; maxillary reached 2/3 to 3/4 in eye, expansion 1/8 to 1/4 eye, length 2 to 2 1/5 in head from snout tip; teeth fine, villiform, in rather narrow bands in jaws, in vomer and palatines; interorbital 5 3/4 to 6 1/2, deeply concave; moderately deep quadrate depression at occiput. Gill rakers 5 + 10, low finely serrated tubercles, greatly longer than gill filaments, which 1 2/3 in eye. Pair of strong nasal spines, 4 strong supraorbital spines each side, 2 strong occipital and 2 nuchal spines, 3 small post-ocular, little elevated, followed by 4 spines of which first 2 large

and strong and last 2 on supra-
scapula; small spine over second
large postocular; 2 strong,
divergent preorbital spines;
suborbital stay, with 4 spines,
first 1 on preorbital bone; 5
preopercle, upper largest and
with small one at base in front;
2 diverging and rather wide
set opercular, about opposite;
strong spine on humerus.

Scales 36 or 37 + 2 close
along and above lateral line;
tubular scales 22 or 23 + 1 in
lateral line; 5 scales above, 15
below, 6 predorsal to occipital
depression. Usually long flap
at second supraocular spine,
sometimes half of eye; another
at second preorbital spine; row
of flaps along lateral line and
~~a~~other smaller ones scattered

about trunk and tail. Vcales with 10 to 16 basal radiating striae, 0 to 56 apical denticles, with 0 to 4 transverse series of basal elements; circuli fine.

D. XII, 7, I to 10, I, fourth spine 2 to 2 1/5 in total head length, second ray 2 1/5 to 3; A. III, 5, I, second spine 2 1/6 to 2 1/2, second ray 2 1/4 to 2 2/5; caudal 1 2/3 to 1 4/5, convex behind; least depth of caudal peduncle 3 7/8 to 4; pectoral 1 1/2 to 1 3/5, rays I, 7, IX; ventral I, 5, fin 1 3/4 to 2 in total head.

Body brown, whitish below and on under surface. Back with variable, large, black blotches or marblings, sometimes with fine spots or dots. Iris

gray. dark blotches of back reflected on dorsal fins, which also pencilled or marked with finely waved dark close-set bars or bands; usually black blotch more or less distinct behind middle of spinous dorsal. Caudal pale, with 4 or 5 dark gray waved transverse bands. Anal pale or whitish, with 5 or 6 gray transverse bands. Pectoral speckled or spotted dark brown on gray ground color. Ventral pale, with gray or brown cross bands.

Japan.

U. S. N. M., No. 51255. Japan.
D. S. Jordan and J. O. Snyder.
Two very poorly preserved
specimens, not now identifiable.
As Scorpaena fimbriata.

U. S. N. M., No. 57648. Japan.
P. L. Jouy. Length 102 to 118 mm.
Two examples, as Scorpaena
fimbriata.

U. S. N. M., No. 57649. Japan.
P. L. Jouy. Length 124 to 165 mm.
Two examples, poorly preserved.
As Scorpaena onaria. Depth
2 1/5 to 2 1/3. Dorsal rays 9, I.
II.

U. S. N. M., No. 59713. Japan.
H. M. Smith. Length 130 mm.
As Scorpaena onaria. Depth 2 2/5.
Dorsal rays 9, I.
II.

U. S. N. M., No. 71603. Tokyo
market. Albatross Collection
1906. Length 155 to 178 mm. Two
examples. As Scorpaena neglecta.

U. S. N. M., No. 71954. Japan. Bureau of Fisheries. Length 60 to 78 mm. Two examples. Head 2 1/5 to 2 1/4. Dorsal rays 9, I.

U. S. N. M., No. 87053. Foochow, China. A. de Towerby. Length 109 mm. D. XII, 9, I; A. III, 5, I. As Scorpaena neglecta.

One example (with U. S. N. M. No. 51278). Japan. D. S. Jordan and J. O. Snyder. Length 157 mm. Depth 2 2/5; head 2, width 1 3/4. Maxillary reaches opposite hind eye edge. D. XII, 9, I; A. III, 5, I. This specimen with a conspicuous gray black blotch over outer 3/5 of spinous ~~anal~~ dorsal between sixth to tenth spines. Dorsals are largely pale or whitish, except as noted. Soft dorsal with

only a few, irregular, small, scattered dark spots, likewise only few on upper part of pectoral. Otherwise fins white. Seven cutaneous flaps along lateral line, anterior largest.